

California High-Speed Rail Authority

San Jose to Merced Project Section

**Staff Report: Staff-Recommended
Preferred Alternative from San Jose to
Central Valley Wye**

August 2019



The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding effective July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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ACRONYMS AND ABBREVIATIONS

Authority	California High-Speed Rail Authority
C.F.R.	Code of Federal Regulations
Cal. Code Regs.	California Code of Regulations [
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	Environmental Quality Act
CWA	Clean Water Act
DWR	California Department of Water Resources
EIR	environmental impact report
EIS	environmental impact statement
Fed. Reg.	Federal Register
FRA	Federal Rail Administration
GEA	Grasslands Ecological Area
GIS	geographic information system
I-	Interstate
LEDPA	least environmentally damaging, practicable alternative
MOIS	maintenance of infrastructure siding
MOU	memorandum of understanding
MOWF	maintenance of way facility
mph	miles per hour
NEPA	National Environmental Policy Act
NOI	notice of intent
NOP	notice of preparation
PAA	Preliminary Alternatives Analysis report
PA	Preferred Alternative
ROD	Record of Decision
SAA	Supplemental Alternatives Analysis report
SCVWD	Santa Clara Valley Water District
SR	State Route
Statewide Program EIR/EIS	<i>Final Program EIR/EIS for the Proposed California High-Speed Train System</i>
UPRR	Union Pacific Railroad
US	U.S. Highway
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
Valley-to-Valley	Central Valley to Silicon Valley
VTA	(Santa Clara) Valley Transportation Authority
WWTP	wastewater treatment plant

1 INTRODUCTION

1.1 Purpose

This staff report's purpose is to provide the evaluation framework and the staff recommendation of Alternative 4 as the Preferred Alternative (PA) in the forthcoming Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the San Jose to Central Valley Wye Project Extent. This staff report refers to the staff-recommended PA because the alternative has not yet received concurrence from the California High-Speed Rail Authority (Authority) Board of Directors. Authority staff will present this report to the Board of Directors at the September 17, 2019, Board Meeting. The meeting will provide an opportunity for the Board Members to offer input and direction to staff regarding the Preferred Alternative. If the Board concurs with the staff report and recommendation then Alternative 4 will be identified in the Draft EIR/EIS as the Preferred Alternative.

The San Jose to Central Valley Wye Project Extent is part of the San Jose to Merced Project Section. The other parts of the Project Section are covered in separate NEPA/CEQA documents including the Central Valley Wye Supplemental Draft EIR/EIS (Authority 2018a) and the Merced to Fresno Final EIR/EIS (Authority and FRA 2012a).

Effective as of July 23, 2019, the Federal Railroad Administration (FRA) assigned its responsibilities as lead agency for the project under the National Environmental Policy Act (NEPA) to the State of California acting through the California State Transportation Agency and the Authority. Such assignment was made under 23 U.S.C. 327 and via a Memorandum of Understanding signed by FRA and the State.

The staff report and concurrence by the Authority Board do not in any way represent a final decision by the Authority on the selection or approval of a Preferred Alternative. At the conclusion of the Draft EIR/EIS public comment period and after consideration of comments received, the Authority will determine whether (a) under CEQA, to certify the Final EIR, adopt necessary findings, and take action to approve the Preferred Alternative or another alternative for the San Jose to Central Valley Wye Project Extent and (b) under NEPA, approve a Record of Decision to approve the Preferred Alternative or another alternative for the San Jose to Central Valley Wye Project Extent.

1.2 Preferred Alternative Approach

The approach of identifying a PA in the Draft EIR/EIS allows the public, stakeholders, and public agencies to have more time to focus their attention and comments, if they so choose, on the Preferred Alternative. This approach aligns more closely with recent federal transportation laws that encourage the federal transportation administrations to name a Preferred Alternative in the National Environmental Policy Act (NEPA) Draft EIS rather than the Final EIS. It also more closely follows standard California Environmental Quality Act (CEQA) (Public Resources Code 21000-21189) approaches, under which a Draft EIR identifies and defines the Proposed Project (which is conceptually equivalent to a Preferred Alternative).

2 PROJECT ALTERNATIVES

2.1 Alternatives Development

In the *Final Program EIR/EIS for the Proposed California High-Speed Train System* (Statewide Final Program EIR/EIS) (Authority and FRA 2005), the Authority and FRA deferred selection of a corridor between the Bay Area and Central Valley until completion of a second, more focused Program EIR/EIS. In 2008, the Authority and FRA completed the *San Francisco Bay Area (Bay Area) to Central Valley High-Speed Train Final Program EIR/EIS* (Bay Area to Central Valley Program EIR/EIS) (Authority and FRA 2008). In 2010, the Authority completed the *San Francisco Bay Area (Bay Area) to Central Valley High-Speed Train Revised Final Program EIR* (Authority 2010). In 2012, the Authority completed the *Bay Area to Central Valley High-Speed Train Partially Revised Final Program EIR* (Authority 2012b). Through these programmatic documents, the Authority identified a corridor from San Jose south and then east through Pacheco Pass to the Central Valley to advance for further study in a second-tier, project-level EIR/EIS.

The project-level environmental review process for the San Jose to Merced Project Section commenced in 2009 with a NEPA Notice of Intent (NOI), a CEQA Notice of Preparation (NOP), and an agency and public scoping process.

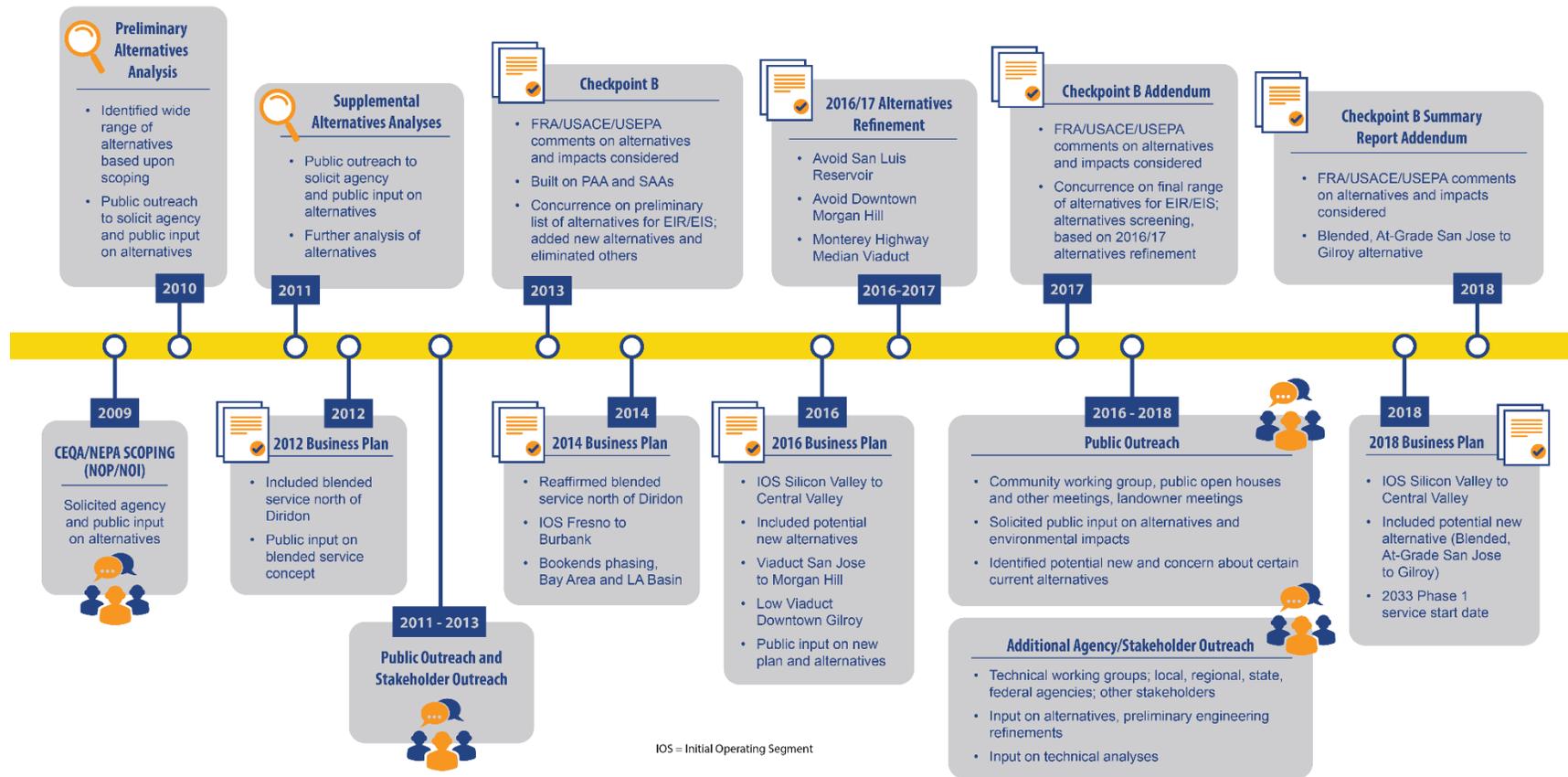
The alternatives development and consideration process was iterative from 2009 to 2018 as illustrated in Figure 2-1. The Authority solicited public and agency comments on the range of alternatives that should be studied in the EIR/EIS multiple times, including the NEPA/CEQA scoping period, during alternatives analysis document preparation in 2010 through 2013, and specifically regarding the San Jose to Central Valley Wye Project Extent in 2016 and 2017. Interagency coordination also informed the development of alternatives for consideration. After the Authority identified the initial group of potential alternatives, plans, concepts, and cross sections were developed as necessary to support early consideration. Initial alternatives were developed and screened in coordination with the NEPA/404/408 Integration process.¹

The following subsections summarize the alternatives development and analysis process and results.

2.1.1 High-Speed Rail Project-Level Alternatives Requirements

An EIR/EIS is required to analyze the potential effects of a range of reasonable alternatives (14 California Code of Regulations [Cal. Code Regs.] § 15126.6; 40 Code of Federal Regulations [C.F.R.] Part 1502.14(a)). Under CEQA, the alternatives are to include a No Project Alternative and a range of potentially feasible alternatives that could (1) meet most of the project’s basic objectives and (2) avoid or substantially lessen one or more of the project’s significant adverse effects (14 Cal. Code Regs. § 15126.6(c)). The lead agency must describe its reasons for excluding other potential alternatives when considering alternatives for evaluation in the environmental document. Under the “rule of reason,” an EIR is required to study a sufficient range of alternatives to permit a reasoned choice (Cal. Code Regs. 14 § 15126.6(f)). CEQA does not require that all possible alternatives be studied.

¹ *NEPA/404/408 Integration* is a formal process by which the FRA, Authority, U.S. Army Corps of Engineers (USACE), and U.S. Environmental Protection Agency (USEPA) coordinate on the identification, preliminary technical evaluation, and validation of detailed evaluation of alternatives in a NEPA document to ascertain that the requirements of the Clean Water Act Section 404 (concerning waters/wetlands) and Rivers and Harbors Act Section 408 (concerning federally authorized flood control projects) are fully and concurrently considered. The FRA, Authority, USACE, and USEPA signed a memorandum of understanding that established a three-step “checkpoint” process to govern interagency coordination for the integration process.



Source: Compiled by Authority 2019

Figure 2-1 Project Alternatives Development and Screening Process

Under NEPA, the alternatives analysis is “the heart of the environmental impact statement” (40 C.F.R. Part 1502.14). Under Council on Environmental Quality (CEQ) regulations, an EIS is required to examine “all reasonable alternatives” to the proposed action, as well as the No Action Alternative.

The CEQ guidance also allows, when the number of potentially reasonable alternatives is very large, the lead agency to examine “a reasonable number of examples, covering the full spectrum of alternatives” (CEQ 1981). Pursuant to Section 10(b) of the FRA’s *Procedures for Considering Environmental Impacts*, “It is entirely proper that the number of alternatives being considered should decrease as the environmental consideration process proceeds and as analysis reveals that certain alternatives would in fact be unreasonable” (64 *Federal Register* [Fed. Reg.] 28546, 28550). The Authority considered the input of the public and interested resource agencies when developing the reasonable range of alternatives. Pursuant to CEQA and NEPA, the Authority and FRA held scoping meetings throughout the alternatives development process to invite public participation in defining the scope of the analysis, including the range of reasonable alternatives.

2.1.2 Alternatives Consideration Process and Chronology

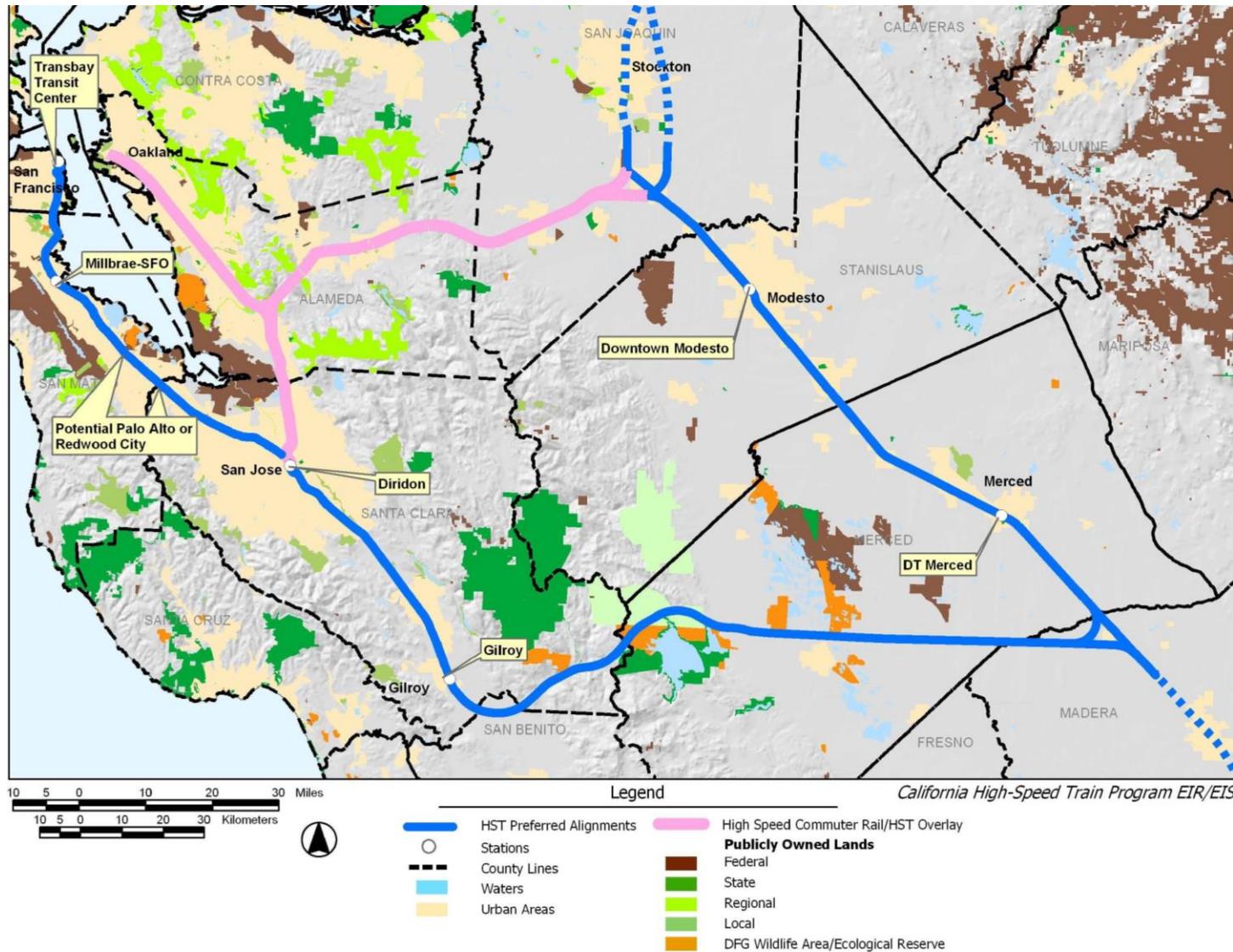
The following summarizes the milestones in alternatives development and consideration during this period.

2.1.2.1 CEQA/NEPA Scoping (2009)

On February 23, 2009, the Authority distributed an NOP for an EIR for the entire San Jose to Merced Project Section. The FRA published an NOI in the Federal Register on March 16, 2009 for preparation of an EIS for the Project Section. Figure 2-2 in the *Final Scoping Report for the San Jose to Merced High-Speed Train Project EIR/EIS* (FRA and Authority 2009) illustrates the preferred corridor identified in the Statewide Program EIR/EIS. The Authority held scoping meetings in Merced (March 18, 2009), San Jose (March 25, 2009), and Gilroy (March 26, 2009). More than 300 residents, property and business owners, agency representatives, elected officials, the media, and other interested parties participated in these meetings. The Authority and FRA solicited input concerning potential project-level alternatives and environmental effects.

Major issues raised during scoping included alignment options and alternatives for routes, stations, and maintenance facilities; design options for grade crossing and separations; considerations for alternative elevated, trenched, or tunneled alignments; parking locations; and other facilities. Additional alignment alternatives suggested included:

- In San Jose, to avoid potential impacts on the greater Gardner neighborhood, several options for underground tunnel or at-grade design options along State Route (SR) 87, south of Interstate (I-) 280, between the San Jose Diridon and Tamien Caltrain stations
- In south San Jose between the Tamien Station and Coyote Valley, an option to follow SR 87 and SR 85, replacing the Santa Clara Valley Transportation Authority (VTA) light rail that runs along that corridor with HSR, and relocating the VTA light rail to Monterey Road
- South of San Jose, an option to follow U.S. Highway (US) 101 to Gilroy, bypassing downtown Morgan Hill
- East of Gilroy on the west side of Pacheco Pass, an option to explore alignment options that would avoid bisecting the Frazier Lake Airpark
- On the east side of Pacheco Pass, options to avoid the Grassland Ecological Area and cross the San Joaquin Valley from Santa Nella to SR 99
- From Los Banos east, several options to follow SR 152 to reduce potential impacts on agricultural lands and Chowchilla
- Options south of SR 152 to reduce potential impacts on Chowchilla and make a connection to the Merced to Bakersfield Project Section



Source: Authority and FRA 2008

Figure 2-2 Tier 1 Decision as Foundation for Range of Alternatives in Tier 2 EIR/EIS

2.1.2.2 Preliminary and Supplemental Alternatives Analysis (2010–2011)

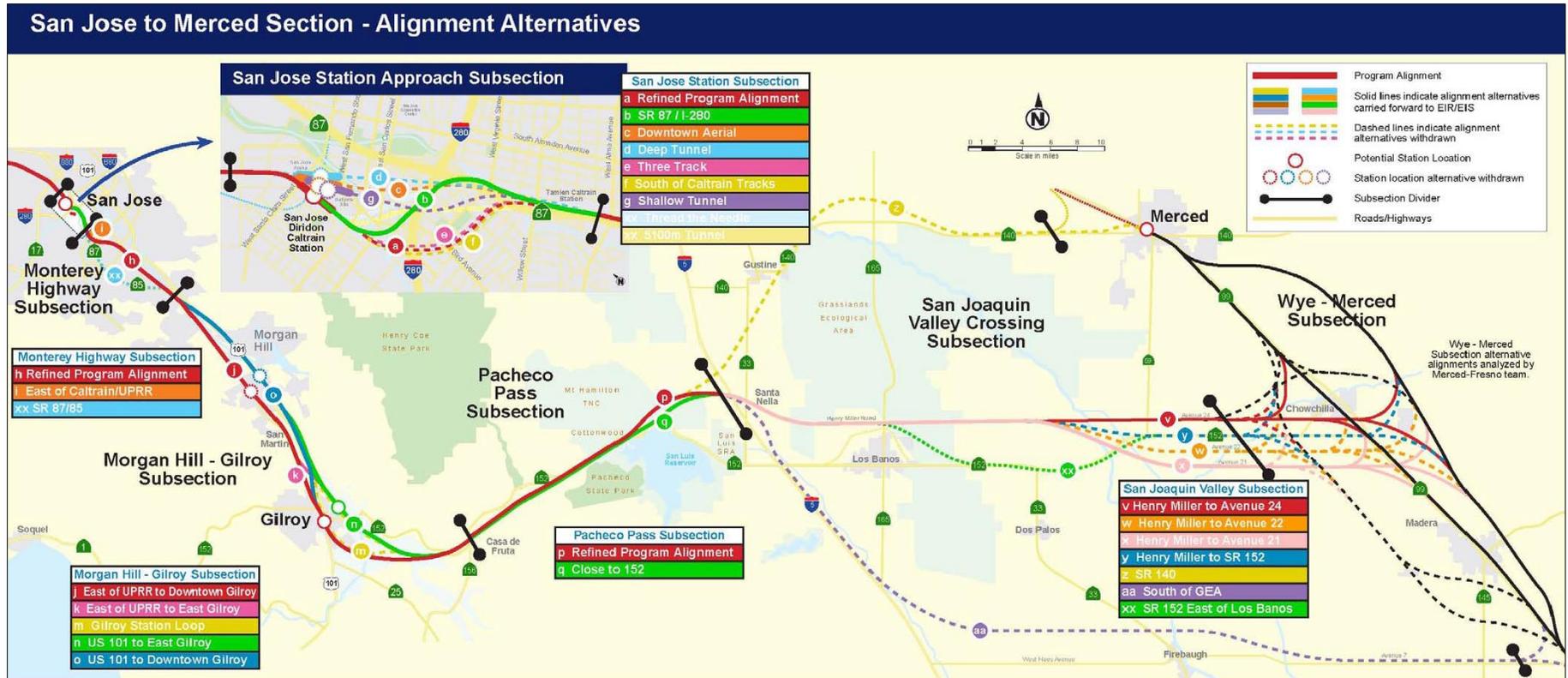
The development of initial project-level alternatives in 2009 followed the process described in *Alternatives Analysis Methods for Project EIR/EIS, Version 2* (Authority 2009). Figure 2-3 illustrates the initial range of alternatives identified through the scoping process. The assessment of potential alternatives involved both qualitative and quantitative analyses to address applicable policy and technical considerations. These methods included field inspections of corridors; project team input and review considering local issues that could affect alignments; qualitative assessment of constructability, accessibility, operations, maintenance, right-of-way, public infrastructure, railway infrastructure, and environmental effects; engineering assessment of project length, travel time, and configuration of key features of the alignment (such as the presence of existing infrastructure); and geographic information system (GIS) analysis of effects on farmland, water resources, wetlands, threatened and endangered species, cultural resources, current urban development, and infrastructure. Stakeholder input, concerns, and preferences were considered to provide important local context.

Next, the Authority evaluated the narrowed range of alternatives against HSR system performance criteria. The screening process used environmental criteria to measure the potential effects of the proposed alternatives on the natural and human environment. For example, the land use criteria measured the extent to which a station alternative would support transit use; be consistent with existing adopted local, regional, and state plans; and be supported by existing and future growth areas. Constructability measured the feasibility of construction and the extent to which right-of-way would be constrained. Community effects measured the extent of disruption to neighborhoods and communities, such as the potential to minimize (1) right-of-way acquisitions, (2) the extent of division of an established community, and (3) conflicts with community resources. The analysis of biological resources and water quality evaluated the extent to which an alternative would minimize effects on natural resources. As a result of this screening process, some alignment alternatives were selected to proceed into the Draft EIR/EIS, as illustrated on Figure 2-3.

Key Environmental Factors in the PAA and SAA Analysis

The PAA/SAA review considered the following factors:

- System factors: travel time, rail length, intermodal connections, costs
 - Constructability: feasibility, disruption to existing railroads and utilities
 - Endangered and threatened species: Effects on habitat for state- and federally listed plant and wildlife species
 - Farmland: Effects on designated Important Farmland
 - Flood control: Effects on floodplains
 - Cultural resources: Effects on archaeological sites and historic buildings and structures
 - Geological constraints
 - Land use: Consistency with local planning
 - Noise: Noise-sensitive receptors near alignment
 - Parks and open space: Effects on publicly owned parks, recreational areas, and wildlife areas per Section 4(f) of the 1966 Department of Transportation Act
 - Residential/commercial: Potential displacement of residences and businesses
 - Schools: Schools in close proximity
 - Transportation: Road closures and emergency vehicle response
 - Visual/scenic resources: Visual effects
 - Waters/wetlands: Effects on state and federal waters
-



Source: Authority and FRA 2010

Figure 2-3 Alternatives Considered in the 2010 Preliminary Alternative Analysis Report

The *San Jose to Merced Preliminary Alternatives Analysis Report (PAA)* (Authority and FRA 2010) and the two San Jose to Merced Supplemental Alternatives Analysis reports (SAA) (Authority and FRA 2011a, 2011b) present the alternatives analyses. The PAA and SAAs considered the entire Project Section from the San Jose Diridon Station through the Central Valley Wye (the planned junction with the Merced to Fresno Project Section) and north to Merced. The alternatives analyses provide the reader with an understanding of how alternatives were developed, taking into account alignment and station development considerations. While the alternatives analysis process considered multiple criteria (see sidebar), it emphasized the project objective to “maximize the use of existing transportation corridors and available rights-of-way to the extent feasible as determined by the Authority” (California Streets and Highways Code, Division 4, Chapter 20, Section 2704 et seq.). Those alternatives that were not carried forward by the Authority and FRA had greater direct and indirect environmental effects, were impracticable, or failed to meet the project purpose. Figure 2-4 illustrates the alignment and station alternatives that resulted from this further development and screening process.

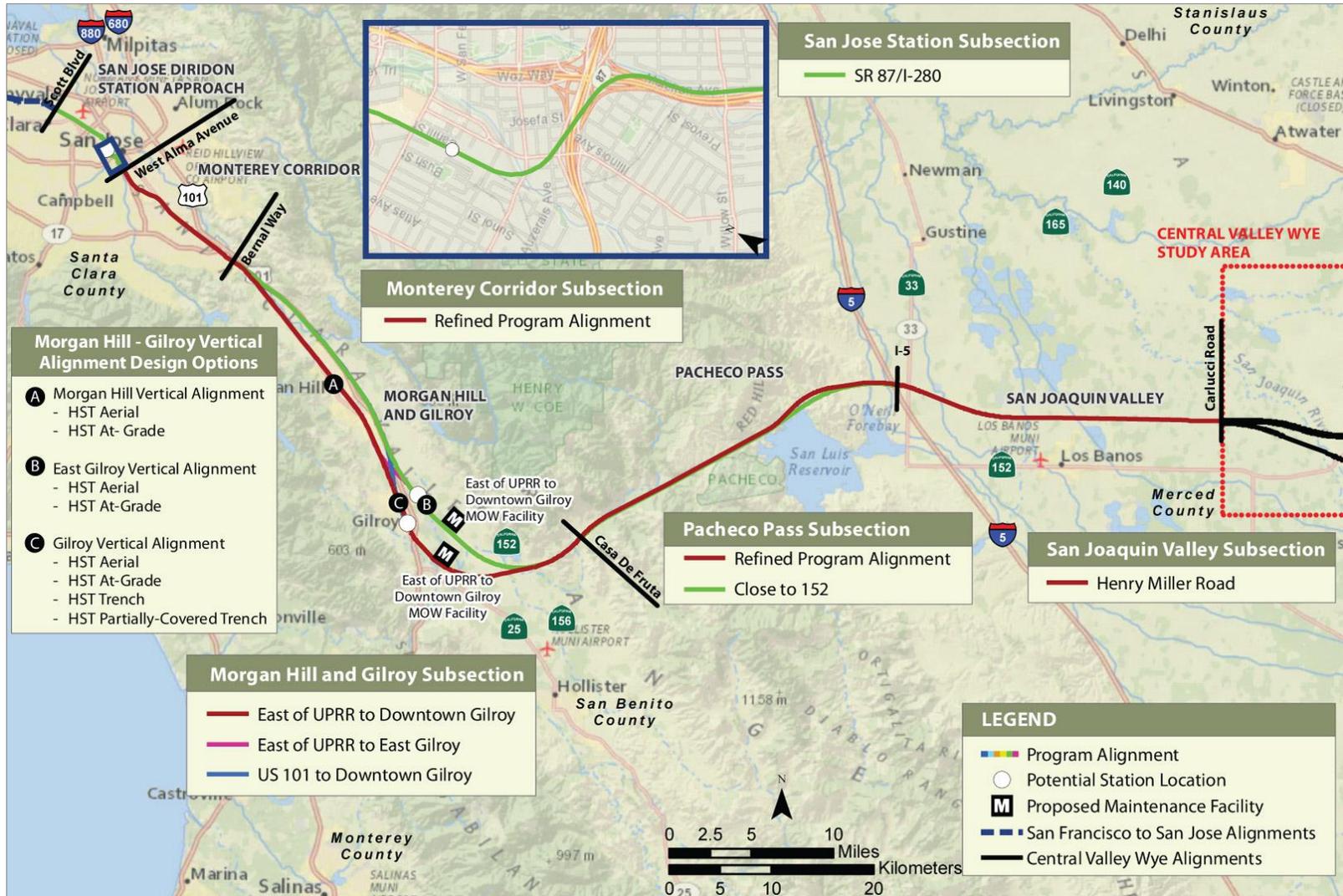
The PAA and SAAs (Authority and FRA 2010, 2011a, 2011b) evaluated alignment alternatives. These documents describe the procedure and rationale for selecting and rejecting alignment alternatives, and are incorporated herein by reference.

The Authority solicited public and agency comments during preparation of the alternatives analysis reports. The PAA and SAAs describe the recommended alternatives to be carried forward for further analysis and alternatives to be withdrawn from further consideration.

2.1.2.3 2012 Business Plan (2012) and Senate Bill 1029

The 2012 Business Plan (Authority 2012) introduced the blended system concept for the San Francisco to San Jose Project Section of the HSR system. Under the blended system, Caltrain and HSR would share the Caltrain corridor and tracks in a mostly at-grade system from San Jose to San Francisco. Senate Bill 1029 restricted use of its appropriated funds to the blended system. The San Jose to Central Valley Wye Project Extent includes the area north of the San Jose Diridon Station to Scott Boulevard. As further discussed in the description of Alternative 1, Caltrain and HSR would operate in blended service from north of I-880 to Scott Boulevard.² Alternative 4 would operate in a blended configuration throughout the Caltrain territory.

² Alternatives 2 and 3 would transition to at-grade operations at Scott Boulevard and therefore would not include a blended service component in this project section.



Source: Authority and FRA 2011

Figure 2-4 Alignment and Station Alternatives Carried Forward from the 2011 Supplemental Alternatives Analysis Report

2.1.2.4 Checkpoint B Summary Report (2013)

Pursuant to the NEPA/404/408 Integration Memorandum of Understanding (MOU), the FRA and the Authority are able to seek to get concurrence from the USACE and USEPA regarding the range of alternatives to be analyzed in the Draft EIR/EIS. The integration process makes more certain that the evaluation considers potential alternatives that can be feasibly permitted by the USACE under the requirements of federal Clean Water Act (CWA) Section 404 and Rivers and Harbors Act Section 408.

In 2013, the Authority and FRA developed a *Checkpoint B Summary Report*, largely drawn from the work completed for the PAA and SAAs between June 2010 and July 2011, for review by the USACE and USEPA. The USACE and USEPA concurred in August and September 2014, respectively, with the alternatives recommended for inclusion in the Draft EIR/EIS.

Following the completion of the Checkpoint B analysis in 2013, work on the San Jose to Merced Project Section as a whole was suspended, and the Authority initiated a more limited study focused on the Central Valley Wye. The Central Valley Wye study was advanced as a supplemental EIR/EIS for the Merced to Fresno Project Section.

In late 2015, the Authority reinitiated work on the San Jose to Central Valley Wye Project Extent—that is, the portion of the San Jose to Merced Project Section that is west of the Central Valley Wye. The additional analysis of the project extent began with, and built upon, the range of alternatives that had been documented in the *2014 Checkpoint B Summary Report* for the San Jose to Merced Project Section.

2.1.2.5 2016 Business Plan

The 2016 Business Plan (Authority 2016) described the Authority's decision to shift its early focus from the project sections in Southern California to those in Northern California with a goal of initiating Silicon Valley to Central Valley (Valley-to-Valley) service before making the extensions to Southern California. In light of updated ridership forecasts and operational planning undertaken since the 2012 Business Plan, the 2016 Business Plan identified certain new alternatives (such as a viaduct alternative between San Jose and Gilroy and blended operations north of Diridon Station) and also reconsidered the dedicated at-grade alignment for the San Jose Diridon Station Approach Subsection that was dismissed as a result of previous analyses.

2.1.2.6 Further Outreach, Consultation, and Alternatives Refinement (2016–2017)

After reinitiating work on the San Jose to Central Valley Wye Project Extent in 2015 and after adoption of the 2016 Business Plan, the Authority and FRA conducted additional community outreach and engineering along the corridor, reaching out to the public, stakeholders, and agencies to solicit their input and concerns about project alternatives and to consider refinements of the prior alternatives or the addition of new alternatives in response to those concerns. The reconsideration of alternatives in 2016 and 2017 used a two-phase screening process. The initial phase considered cost, constructability, and operations. If the alternative met these initial criteria, then it was reviewed for community and environmental impacts.

Key Environmental Factors in the Checkpoint B Analysis

The Checkpoint B alternatives review considered the following factors:

- Waters/wetlands: Effects on waters of the U.S. (including wetlands) per CWA Section 404 as well as state-regulated wetlands and riparian areas
- Flood control: Effects on federally authorized flood control projects under Rivers and Harbors Act Section 408 and on floodplains
- Cultural resources: Effects on archaeological sites and historic buildings and structures
- Endangered and threatened species: Effects on habitat for state- and federally listed plant and wildlife species
- Environmental justice: Extent of low-income and minority populations near the alignment
- Farmland: Effects on designated Important Farmland
- Parks and open space: Effects on publicly owned parks, recreational areas, and wildlife areas per Section 4(f) of the 1966 Department of Transportation Act
- Residential and commercial: Potential displacement of residences and businesses

The Authority and FRA conducted a wide range of public outreach meetings; consulted with environmental regulatory agencies; consulted with cities and counties; and met with federal, state, and private landowners and other stakeholders during this process. This additional outreach led to the development of new design options in the Monterey Corridor, Morgan Hill and Gilroy, and Pacheco Pass Subsections and reconsideration of some alternatives previously dismissed in earlier alternative evaluations. Figure 2-5 illustrates the alignments and design options that were presented in April 2016 community and technical working group meetings.

2.1.2.7 Checkpoint B Summary Report Addendum (2017)

The Authority and FRA reviewed prior design options and new design options developed during 2016 and 2017 using the process described above for the Checkpoint B Summary Report (2013). The results of the evaluation of new design options and reconsideration of prior design options are presented in Section 2.1.2.10, Summary of Alternatives Consideration Process.

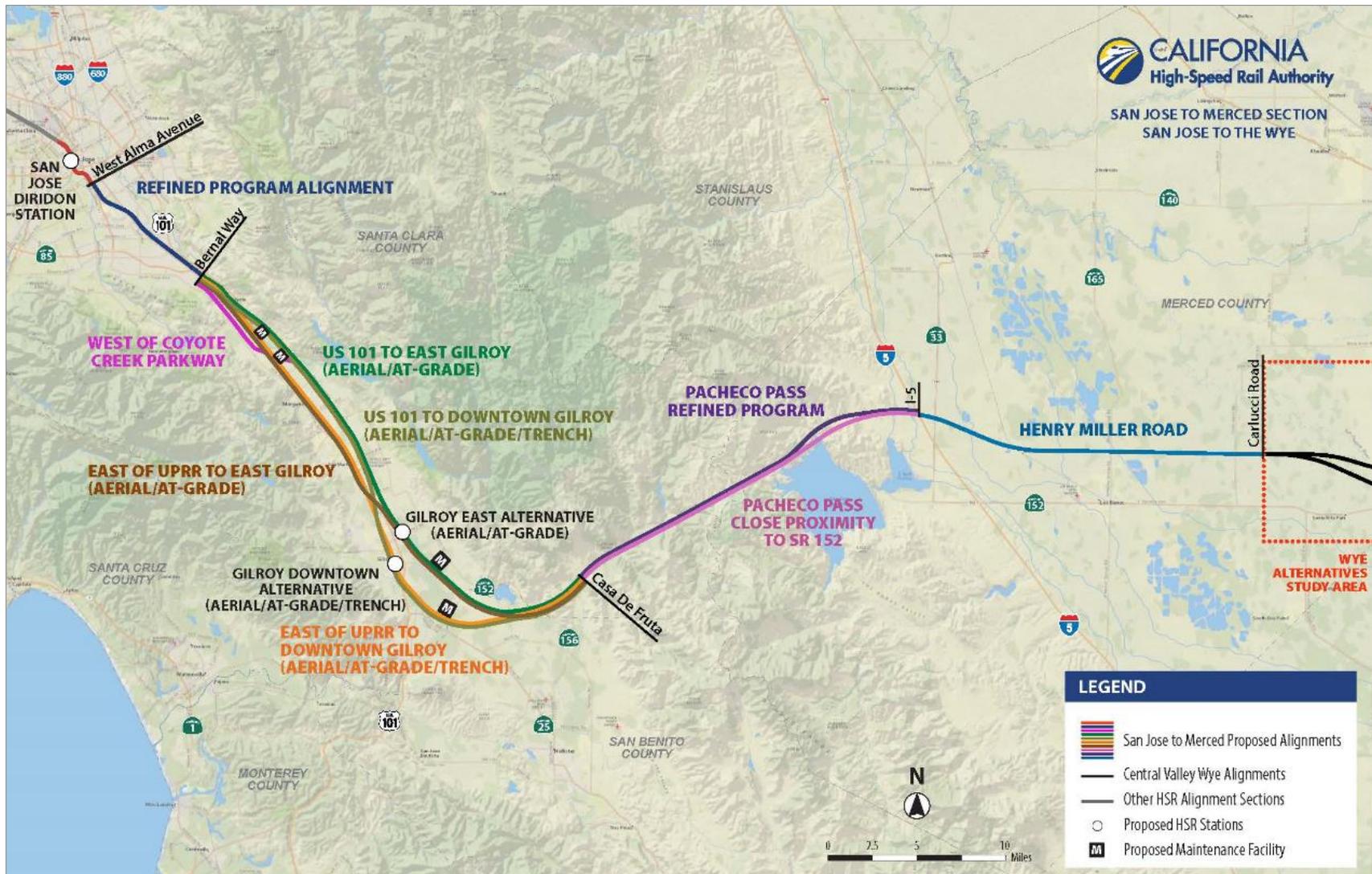
The Authority and FRA developed a Checkpoint B Summary Report Addendum (2017) to narrow the range of alternatives to three build alternatives for preliminary engineering and analyses of potential impacts for the Draft EIR/EIS. Figure 2-6 illustrates the alignments and design options that were recommended to be carried forward in the Draft EIR/EIS as a result of the evaluation. The USACE and USEPA concurred with the range of alternatives in the Checkpoint B Summary Report Addendum (2017) (Authority and FRA 2017) in September 2017.

2.1.2.8 2018 Business Plan

The 2018 Business Plan (Authority 2018b) confirmed the Authority's decision to focus on the project sections in Northern California with a goal of initiating Valley-to-Valley service first. In light of operational planning undertaken since the 2016 Business Plan, the 2018 Business Plan included reconsideration (albeit modified to a different form) of the formerly dismissed at-grade alignment for the San Jose Diridon Station Approach Subsection to extend blended service proposed for the San Francisco to San Jose Project Section from San Jose to Gilroy. The blended infrastructure and service between the San Jose Diridon Station and Downtown Gilroy Station would be largely at grade and predominantly within the existing Caltrain and Union Pacific Railroad (UPRR) rights-of-way. The concept of extending blended electrified passenger rail infrastructure and operations from San Jose to Gilroy as part of Valley to Valley service is currently under discussion between the California State Transportation Agency, the Authority, and UPRR. In 2018, the parties had advanced the concept sufficiently that the Authority determined that this alternative merited study as at least potentially feasible.

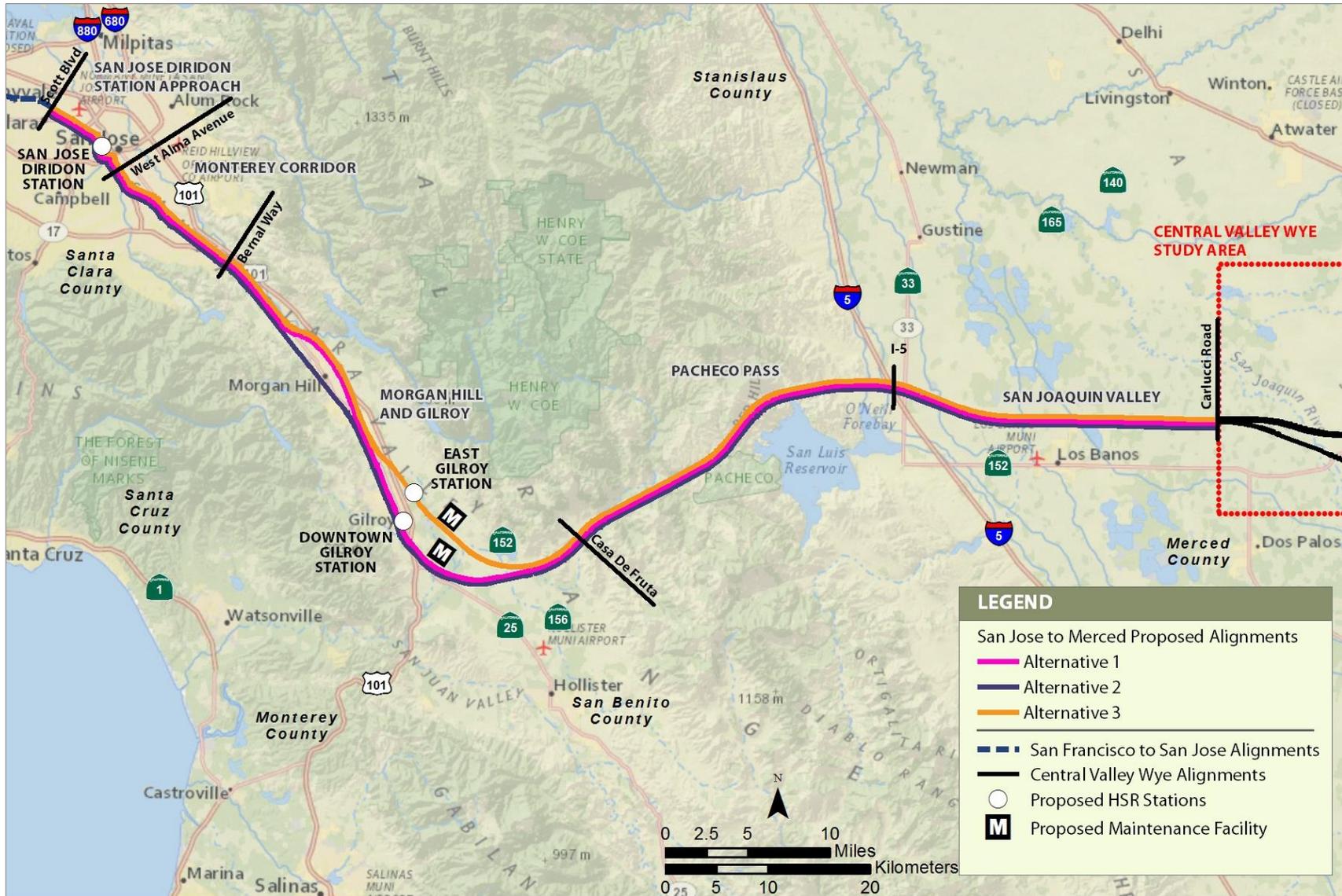
What does "blended" mean?

Blended refers to operating the HSR trains with existing intercity and commuter and regional rail trains on common infrastructure.



Source: Authority and FRA 2017

Figure 2-5 Alternatives Refinements Resulting from Outreach during 2016



Source: Authority and FRA 2017

Figure 2-6 Alternatives Refinements Resulting from Outreach during 2017 Checkpoint B Addendum Development

2.1.2.9 Checkpoint B Summary Report Addendum (2018)

The Authority developed a blended, at-grade design option during 2017 and 2018 that would implement the 2018 Business Plan concept. The Authority developed a *Checkpoint B Summary Report Addendum (2018)* to review the preliminary effects of a blended, at-grade alternative and determine whether to include the new alternative within the range evaluated for the Draft EIR/EIS. The USACE and USEPA concurred with the expanded range of alternatives in the *Checkpoint B Summary Report Addendum* (Authority and FRA 2018) on January 22, 2019, and February 1, 2019, respectively. The blended, at-grade alternative became Alternative 4 in for the Draft EIR/EIS.

2.1.2.10 Summary of Alternatives Consideration Process

The design options that are evaluated in the Draft EIR/EIS were selected through the alternatives development and evaluation process described in the preceding sections. Table 2-1 shows the overall results of the alternative screening process. Figure 2-7, following Table 2-1, shows the alternatives evaluated in the Draft EIR/EIS.

Table 2-1 San Jose to Central Valley Wye Project Extent: Design Options Considered

Design Option	Decision		Reasons for Elimination (P = Primary; S = Secondary)							Environmental / Other Concerns
	Carried Forward	Withdrawn	Constructability	Cost	Community Effects (e.g., displacement, noise, visual)	Waters/Wetlands	Park Resources (Section 4f)	Other Natural or Cultural Resources	Incompatibility with Other Rail	
San Jose Diridon Approach Subsection										
1. Viaduct to Scott Blvd	X									Business displacement; biological, cultural, and parkland resources; visual effects
2. Viaduct to I-880	X									Business displacement; biological, cultural, and parkland resources; visual effects
3. Refined Program Alignment		X			P	S	S	S		Community effects: residential displacement, nonprofit (house of worship) displacement; noise; biological, cultural, visual, and park resources
4. Three Track (south of Diridon)		X			P				P	Inconsistent with Caltrain Operating Plan
5. South of Caltrain Tracks		X			P	S	S	S		Property effects; community effects; residential displacement; nonprofit (house of worship) displacement; noise/vibration; biological, cultural, visual, and park resources
6. Downtown Aerial		X	P		S			S		Residential/ business displacement; biological, cultural, and visual resources; community concerns; constructability issues
7. Deep Tunnel/Underground Station		X	P	S				S		Major constructability issues (poor soils, high groundwater, potential settlement); business displacement; cultural resources; construction effects; substantial costs
8. Shallow Tunnel/Underground Station		X	P	S		S		S	S	Relocation (lowering) of proposed BART station under HSR station in poor soils/high groundwater; lowering of BART tunnels; impacts on Los Gatos Creek from cut-and-cover construction; business displacement; cultural resources; construction effects; substantial costs.
9. Blended, At-Grade	X									Disruption and noise effects; Requires agreement with Union Pacific Railroad

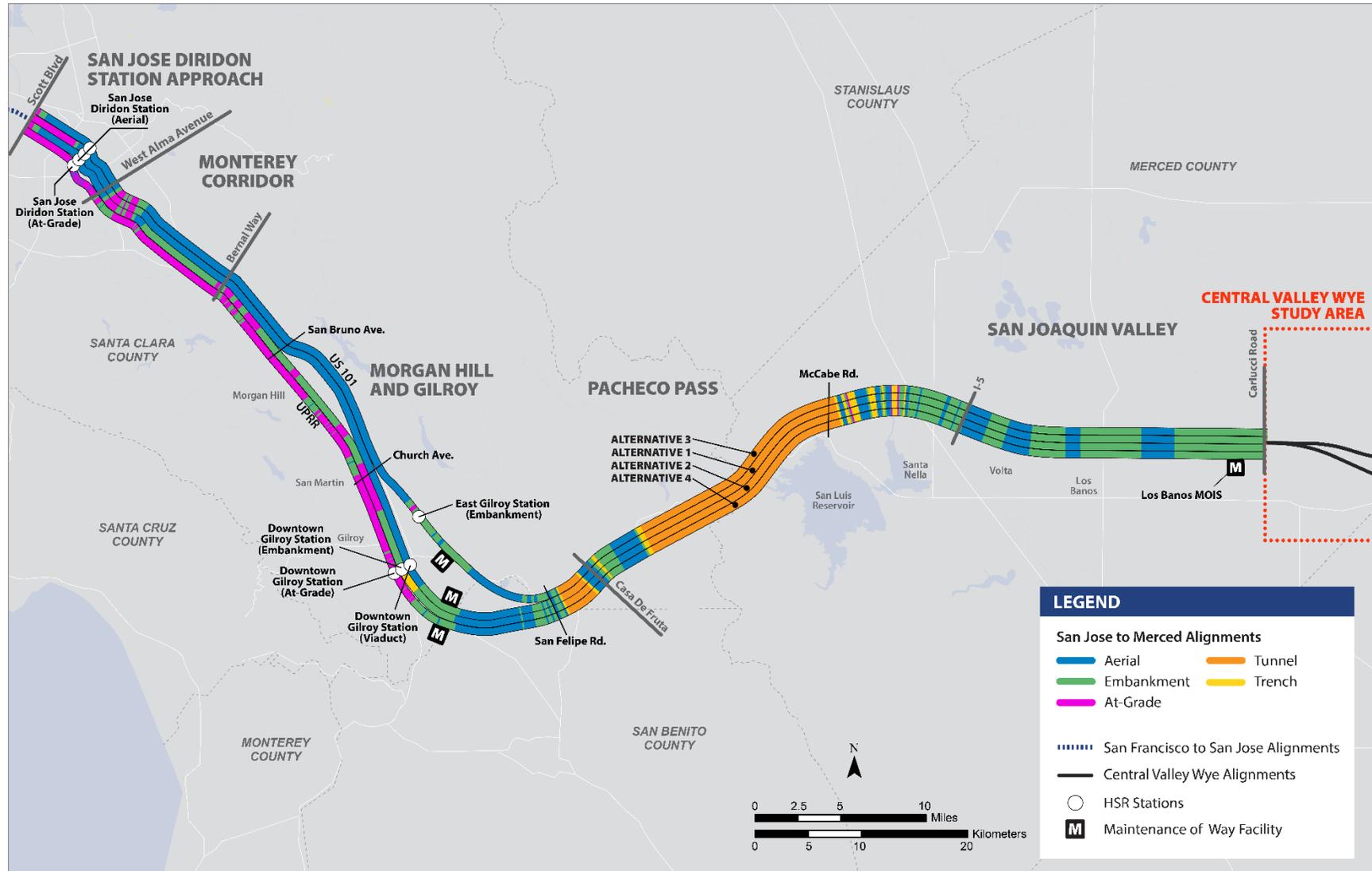
Design Option	Decision		Reasons for Elimination (P = Primary; S = Secondary)							Environmental / Other Concerns
	Carried Forward	Withdrawn	Constructability	Cost	Community Effects (e.g., displacement, noise, visual)	Waters/Wetlands	Park Resources (Section 4f)	Other Natural or Cultural Resources	Incompatibility with Other Rail	
Monterey Corridor Subsection										
1. Median Viaduct	X									Visual effects, traffic effects during construction and operations, noise, property acquisition
2. At-Grade (RPA)	X									Visual effects, traffic effects during construction and operations, noise, property acquisition
3. SR 87/SR 85		X			P				P	Community effects and displacements in areas outside road ROW, displacement of VTA light rail line, substantial costs due to relocation
4. US 101/I-280		X			P		P			Community effects and displacements in areas outside road ROW; effects on parkland south of SR 85
5. US 101 to Monterey Rd via SR 85		X			P		P			Community effects and displacements in areas outside road ROW, effects on parkland south of SR 85
6. US 101 to Monterey Rd via Blossom Hill Road		X			P		P			Community effects and displacements in areas outside road ROW, effects on parkland south of SR 85
7. Cut-and-Cover Tunnel on Monterey Rd		X		P					S	Prohibitive cost (approximately twice the cost of median viaduct option), groundwater hydrology and supply effects
8. Bored Tunnel on Monterey Rd		X		P					S	Prohibitive cost (approximately 2.5 times the cost of median viaduct option), groundwater hydrology and supply effects
9. Blended, At-Grade	X									Emergency vehicle response time during operation, noise
Morgan Hill and Gilroy Subsection										
1. Viaduct to Downtown Gilroy via Morgan Hill Bypass (including MOWF Site D)	X									Visual effects, traffic effects during construction and operation, noise, property acquisition and displacement, cultural resources, floodplain
2. Embankment to Downtown Gilroy (including MOWF Site D)	X									Traffic effects during construction and operation, noise, property acquisition and displacement, cultural resources farmland, floodplain

Design Option	Decision		Reasons for Elimination (P = Primary; S = Secondary)							Environmental / Other Concerns
	Carried Forward	Withdrawn	Constructability	Cost	Community Effects (e.g., displacement, noise, visual)	Waters/Wetlands	Park Resources (Section 4f)	Other Natural or Cultural Resources	Incompatibility with Other Rail	
3. Viaduct to East Gilroy via Morgan Hill Bypass (including MOWF Site C)	X									Visual effects, traffic effects during construction and operation, noise, property acquisition, cultural resources, floodplain
4. US 101 Alignment to Downtown Gilroy		X				P	P	P		Aquatic resources, threatened and endangered species habitat, floodplains, farmlands, parks (4f resources), land use disruption from tunnel/trench near airport
5. US 101 Alignment to East Gilroy		X				P	P	P		Aquatic resources, threatened and endangered species habitat, farmlands, parks (4f resources)
6. East of UPRR to East Gilroy		X			P			P		Threatened and endangered species habitat, built environment cultural resources, residential displacements, floodplains, farmlands, land use disruption from US 101 crossover
7. West of Coyote Creek to Downtown Gilroy		X				P	P	P		Aquatic resources, threatened and endangered species habitat, built environment cultural resources, parks (4f resources), floodplains, farmlands, land use disruption from tunnel/trench near airport
8. West of Coyote Creek to East Gilroy		X				P	P	P		Aquatic resources, threatened and endangered species habitat, built environment cultural resources, parks (4f resources), floodplains, farmlands, land use disruption
9. Gilroy Station Loop		X		P	P					Substantially higher cost of multiple alignments, visual effects of multiple alignments.
10. Foothills		X						P		Threatened and endangered species habitat, poor connectivity of potential station
11. Downtown Gilroy Tunnel		X		P				S		Prohibitive cost (approximately 2–2.5 times the cost of median viaduct option), groundwater hydrology and supply effects
12. Morgan Hill to Gilroy Tunnel		X		P				S		Prohibitive cost (approximately 2–2.5 times the cost of median viaduct option), groundwater hydrology and supply effects
13. Gilroy US 101 Alignment		X		P	P					Higher cost and no benefits compared to downtown alignments. Would also be inconsistent with Authority's TOD policies

Design Option	Decision		Reasons for Elimination (P = Primary; S = Secondary)							Environmental / Other Concerns
	Carried Forward	Withdrawn	Constructability	Cost	Community Effects (e.g., displacement, noise, visual)	Waters/Wetlands	Park Resources (Section 4f)	Other Natural or Cultural Resources	Incompatibility with Other Rail	
14. Blended, At-Grade (including South Gilroy MOWF)	X									Traffic effects during construction and operation, noise, property acquisition and displacement, cultural resources, farmland, floodplain
▪ Maintenance Facility "A"		X					P	P		Coyote Creek Regional Park, wildlife movement, farmland
▪ Maintenance Facility "B"		X					P	P		Coyote Creek Regional Park, wildlife movement, farmland
Pacheco Pass Subsection										
1. North Pacheco Tunnel	X									Threatened and endangered species habitat, water quality (dewatering), spoils placement
2. Close Proximity to SR 152		X				P	P	P		San Luis Reservoir, Cottonwood Creek Wildlife Area, threatened and endangered species habitat, waters/wetlands, floodplains
3. RPA		X				P	P	P		San Luis Reservoir, Cottonwood Creek Wildlife Area, threatened and endangered species habitat, waters/wetlands, floodplains
San Joaquin Valley Subsection										
1. Henry Miller Rd to Carlucci Rd	X									Farmlands and dairies, wetlands/waters, traffic effects during construction and operation, noise, residential and commercial displacement
2. GEA North/Merced		X				P	P			Aquatic resources, North GEA, state park crossing, additional HSR travel time
3. South of GEA		X	S	S		P				Aquatic resources, high cost and logistical issues because of longer alignment

Source: Compiled by Authority 2019

RPA = Refined Program Alignment; BART = Bay Area Rapid Transit; HSR = high-speed rail; SR = State Route; US = U.S. Highway; I- = interstate; VTA = (Santa Clara) Valley Transportation Authority; ROW = right-of-way; MOWF = maintenance of way facility; UPRR = Union Pacific Railroad; TOD = transit-oriented development; GEA = Grasslands Ecological Area



Source: Authority 2019

DRAFT JULY 2019

Figure 2-7 Alternatives Evaluated in Detail in the EIR/EIS

2.2 Alternatives Evaluated in the EIR/EIS

Based on the alternatives development process described in the preceding section, the Authority advanced four alternatives for detailed evaluation in the Draft EIR/EIS, as described in this section and illustrated in Figure 2-7.

2.2.1 Alternative 1

Development of Alternative 1 was intended to minimize the project footprint, ground disturbance, and continuous surface features, and decrease necessary right-of-way acquisition through extensive use of viaduct structures and bypassing downtown Morgan Hill. It would minimize land use displacements and conversion by staying predominantly within existing transportation corridor rights-of-way, thereby minimizing impacts of the HSR infrastructure footprint on local communities and environmental resources. The vertical footprint would be increased to minimize ground intrusion.

Alternative 1 would include the short viaduct option, operating in blended service between Scott Boulevard and I-880 before transitioning to viaduct through most of the San Jose Diridon Station Approach Subsection (including over I-280 and SR-87). The alternative would continue predominantly on viaduct through the Monterey Corridor and Morgan Hill and Gilroy Subsections. The alternative is distinguished by an alignment around downtown Morgan Hill and a low viaduct approach to an aerial Downtown Gilroy Station. Alternative 1 would include a maintenance of way facility (MOWF) south of Gilroy. The alignment would continue predominantly on viaduct and embankment across the Soap Lake floodplain before entering a short tunnel west of Casa De Fruta.

The alignment and guideway in the Pacheco Pass Subsection would be the same for all four alternatives, entailing a long tunnel around the northern arm of the San Luis Reservoir and viaducts over the California Aqueduct, Delta-Mendota Canal, and I-5. The alignment and guideway in the San Joaquin Valley Subsection would similarly be common to all four alternatives. East of the I-5 overcrossing, the guideway would be predominantly on embankment along the south side of Henry Miller Road to Carlucci Road, traveling on viaduct over major watercourses and through the Grasslands Ecological Area (GEA). Several local roadways would be relocated on bridges over the HSR embankment. A maintenance of infrastructure siding (MOIS) would be located along the south side of Henry Miller Road near Turner Island Road.

Overall, the HSR guideway under this alternative would comprise 45.4 miles of viaduct, two tunnels totaling 15.0 miles, 21.9 miles of embankment, 4.3 miles at grade in an excavated hillside cut, and 2.3 miles in trench.

2.2.2 Alternative 2

Alternative 2 is the alternative that most closely approximates the alignment and structure types identified in the prior program-level documents, implemented by limiting longitudinal encroachment into the UPRR right-of-way to combine railroad grade separations with minimum property displacements. The alignment closely follows the existing UPRR and Monterey Road transportation corridor. In the San Jose Diridon Station Approach Subsection, Alternative 2 would be on a longer viaduct than under Alternative 1, ascending to dedicated viaduct near Scott Boulevard rather than south of I-880. Consequently, the portion of the alignment between Scott Boulevard and I-880 would be dedicated service rather than blended service as under Alternative 1.

Alternative 2 would operate on a dedicated viaduct from Scott Boulevard through the San Jose Diridon Station Approach Subsection (over I-280 and SR-87). The alternative would be predominantly at grade east of the UPRR alignment through the Monterey Corridor Subsection, continuing at grade east of UPRR through Morgan Hill to an embankment approach to the Downtown Gilroy Station through the Morgan Hill and Gilroy Subsection. Alternative 2 would maintain a lower profile than the viaduct structures through these areas under Alternatives 1 and 3. Like Alternative 1, Alternative 2 would include a South Gilroy MOWF, continuing on predominantly viaduct and embankment across the Soap Lake floodplain before entering a short tunnel west of Casa De Fruta.

The alignment and guideway in the Pacheco Pass and San Joaquin Valley Subsections would be the same under all four alternatives, as described for Alternative 1. Overall, the HSR guideway under this

alternative would comprise 20.9 miles on viaduct, two tunnels totaling 15.0 miles, 41.0 miles on embankment, 8.5 miles at grade, and 3.2 miles in trench.

2.2.3 Alternative 3

Alternative 3 was designed to minimize the project footprint through the use of viaduct and by going around downtown Morgan Hill, as is proposed under Alternative 1. Alternative 3 would bypass downtown Gilroy to an East Gilroy Station, further minimizing interface with the UPRR corridor in comparison to Alternative 1. Like Alternative 2, Alternative 3 would include the long viaduct option from Scott Boulevard, requiring less disruption of Caltrain tracks than the shorter viaduct from I-880. Alternative 3 would incorporate the same alignment and profile as Alternative 1 in the Monterey Corridor Subsection and the same alignment and profile as Alternative 2 in the San Jose Diridon Station Approach Subsection.

Alternative 3 would operate in a dedicated viaduct from Scott Boulevard through the San Jose Diridon Station Approach Subsection (over I-280 and SR-87). The alternative would continue predominantly on viaduct through the Monterey Corridor and Morgan Hill and Gilroy Subsections on an alignment around downtown Morgan Hill to an embankment approach to the East Gilroy Station. Alternative 3 would include an East Gilroy MOWF and would continue predominantly on viaduct and embankment across the Soap Lake floodplain before entering a short tunnel west of Casa De Fruta. The alignment and guideway in the Pacheco Pass Subsection would be the same for all four alternatives, entailing a long tunnel around the northern arm of the San Luis Reservoir and viaducts over the California Aqueduct, Delta-Mendota Canal, and I-5.

The alignment and guideway in the Pacheco Pass and San Joaquin Valley Subsections would be the same under all four alternatives, as described for Alternative 1. Overall, the HSR guideway under this alternative would comprise 43.2 miles on viaduct, two tunnels totaling 15.0 miles, 24.9 miles on embankment, 1.8 miles at grade, and 2.4 miles in trench.

2.2.4 Alternative 4

Development of Alternative 4 was intended to extend blended electric-powered passenger railroad infrastructure from the southern limit of the Caltrain Peninsula Corridor Electrification Project through Gilroy. South and east of Gilroy, HSR would operate on a dedicated guideway similar to that of Alternatives 1, 2, and 3. The objectives of this approach are to minimize property displacements and natural resource impacts, retain local community development patterns, improve the operational efficiency and safety of the existing railroad corridor, and accelerate delivery of electrified passenger rail services in the increasingly congested southern Santa Clara Valley corridor.

The alternative is distinguished from the other three alternatives by a blended, at-grade alignment that would operate on two electrified passenger tracks and one conventional freight track predominantly within the existing Caltrain and UPRR rights-of-way. The maximum train speed of 110 miles per hour (mph) in the blended guideway would be enabled by continuous access-restriction fencing; four-quad gates, roadway lane channels, and railroad trespass deterrents at all public road grade crossings; and fully integrated communications and controls for train operations, grade crossings, and roadway traffic. Caltrain stations would be reconstructed to accommodate northbound and southbound trains on different tracks as part of blended operations. Overall, the HSR guideway under this alternative would comprise 15.2 miles on viaduct, two tunnels totaling 15.0 miles, 25.9 miles on embankment, 30.3 miles at grade, and 2.3 miles in trench.

2.3 Public and Stakeholder Engagement

2.3.1 Public Outreach and Stakeholder Engagement

Stakeholder input is an important component of the Authority's evaluation of alternatives in the CEQA and NEPA environmental review processes. The Authority has consulted with many individuals, local governments, tribes, public agencies, and organizations to obtain local knowledge and input on developing, refining, and evaluating project alternatives. The Authority and FRA have involved stakeholders extensively, beginning with scoping in 2009 through mid-2018 and the Authority has continued with outreach activities into 2019. During that time, commenters have submitted hundreds

of comments to the Authority. A detailed list of outreach meetings through spring 2019 that contributed to identification of the staff-recommended Preferred Alternative is provided in Appendix A, Public Outreach and Stakeholder Engagement. As discussed in Section 2.3.3, the Authority conducted specific outreach on the staff-recommended Preferred Alternative in summer 2019, which is summarized in the separate *San Jose to Merced Project Section Preferred Alternative Outreach Summary Report*.

2.3.1.1 Local Communities

Key feedback from local communities relative to the alternatives development process included the following:

- **Santa Clara and City of San Jose, north of downtown**— Santa Clara residents expressed concern about construction and operational traffic. Residents of the Newhall neighborhood in Santa Clara expressed concern about community cohesion and connectivity. Residents of the College Park neighborhood in San Jose expressed concern about the impacts on aesthetics and visual quality from viaduct designs north of downtown. This was one of the considerations in developing the shorter Viaduct to I-880 design option under Alternative 1. Representatives of the College Park neighborhood prefer Alternative 4 to the Viaduct to I-880 design option under Alternatives 1 and 3 or the Viaduct to Scott Boulevard design option under Alternative 2 because of the lower visual quality impact of an at-grade design.
- **City of San Jose, downtown area to Tamien**—Some residents prefer a tunnel option for downtown San Jose to avoid visual impacts and business and residential displacement impacts of an aerial alignment, and the noise, train traffic, and other impacts of an at-grade alignment. However, a tunnel option is prohibitively expensive and infeasible due to constructability and cost reasons. Some downtown businesses prefer the at-grade design option under Alternative 4 over the viaduct option under Alternatives 1, 2, and 3 because of concerns about aesthetics and visual resource impacts as well as displacement of existing or future development potential in the downtown area. Residents in the North Willow Glen/Gardner Neighborhood prefer Alternatives 1, 2, and 3 because they go around the Gardner and North Willow Glen communities. Alternative 4 passes through the communities and raises neighborhood concerns, including traffic at the at-grade crossings, operational train noise, construction impacts on the neighborhood, and impacts on Fuller Park. The City of San Jose is also concerned about the effects of alternatives on future development of the Diridon Station area.
- **City of San Jose, Monterey Corridor**—Some residents along the Monterey Corridor prefer a tunnel option for the Monterey Corridor; however, a tunnel option is prohibitively expensive and infeasible due to cost. Residents along the Monterey Corridor are concerned about the impacts related to construction disruption, traffic (due to lane reductions or at-grade crossing downtime), noise, aesthetics and visual quality, and displacements.
- **City of Morgan Hill**—In 2016, the City of Morgan Hill requested that the Authority include an alternative that avoided downtown Morgan Hill. The Authority addressed this request through the Morgan Hill viaduct bypass under Alternatives 1 and 3. The City expressed concern about the embankment design option of Alternative 2 dividing the community and impacts on aesthetics and visual quality, construction disruption, and noise. City staff have reacted favorably to the relatively smaller project footprint of Alternative 4, and the potential regional transit opportunities provided by blended electric-powered passenger rail infrastructure. Residents along the viaduct that would bypass downtown Morgan Hill are concerned about displacement, noise, and aesthetics and visual quality.
- **Community of San Martin**—Residents of this community would prefer an alignment along or east of US 101 that avoids the center of San Martin. Residents are concerned about displacements of homes and business, aesthetics and visual quality, noise, and construction disruption. Santa Clara County is concerned about displacements, impacts on residents, and impacts on agricultural lands and operations.

- **City of Gilroy**—During the alternatives development process, the City of Gilroy did not express a definitive preference for either a downtown alignment or an east Gilroy alignment. Residents and businesses in downtown Gilroy and east Gilroy have expressed different preferences concerning station and alignment options. Downtown residents and businesses are concerned about residential and commercial displacements, noise, aesthetics, historic resources, impacts on roadways and traffic, and disruption of business operations during construction related to the construction of dedicated alternatives in downtown Gilroy. East Gilroy residents expressed concerns about impacts on aesthetics and visual quality, agricultural lands, reduced access to properties, property acquisitions, induced growth around an East Gilroy Station, and noise. The City has expressed concern about the potential impacts of Alternatives 1, 2, and 3 on the Gilroy wastewater treatment plant facilities. In general, City staff have responded favorably to Alternative 4, which avoids impacts to the regional wastewater treatment and disposal ponds, though continue to be concerned about downtown traffic management related to at-grade roadway crossings and the proposed closure of Old Gilroy/7th Street. The Gilroy School District is concerned about displacement and replacement of the Gilroy Prep School and South Valley Middle School sites by Alternatives 1 and 2. District staff have expressed preference for Alternative 3 or 4, neither of which would impact school properties.
- **Pacheco Pass and San Joaquin Valley**—Farmers, ranchers, residents, irrigation purveyors, conservation organizations, recreational hunters, and other stakeholders in the Pacheco Pass and San Joaquin Valley subsections raised concerns about impacts to subsistence ranching operations; loss of sensitive foothill habitats; disruption of wildlife movement corridors; loss of agricultural land and dairies; impacts on agricultural access and water infrastructure; impacts of noise on residents, schools and livestock; the viability of temporarily disturbed agricultural land after construction, safety of trains operating in excess of 200 mph; impacts to recreational hunting; disruption of waterfowl habitats in the Grasslands Ecological Area; and duck club land values.

2.3.1.2 Native American Tribes

Native American tribal outreach and consultation efforts have been ongoing at key milestones throughout the project planning and environmental processes from 2010 to 2019. Due to concerns about potential disturbance of cultural resources, the Authority must maintain the confidentiality of information shared by tribal representatives. In general, tribal representatives have expressed concerns about potential effects on individual cultural resources and on the larger landscape in which those resources are situated. Tribal representatives emphasized the need for continued consultation and involvement through the design, planning, and construction phases because of the sensitivity of the Pajaro floodplain/Soap Lake and its environs as well as Pacheco Pass landscapes and San Joaquin Valley areas important to tribes.

2.3.1.3 Agricultural Interests

As noted previously, farmers, ranchers, stakeholders, and farm bureaus in the Morgan Hill and Gilroy, Pacheco Pass, and San Joaquin Valley Subsections as well as Merced County and the Merced County Farm Bureau raised concerns about potential effects on agricultural land and related uses, dairies and other agricultural operations, agricultural access and water infrastructure, noise on livestock, agricultural conservation easements, wildlife use and movement through agricultural lands, and the viability of temporarily disturbed agricultural land after construction.

2.3.1.4 Businesses

The Authority has met with a wide variety of business representatives throughout the project development process. Key concerns include displacement of existing businesses throughout the project footprint, including downtown San Jose, Morgan Hill, Gilroy, and Merced County; potential incompatibility of design options with future land use development potential; disruption of access to businesses during and after construction; business relocation procedures and the effectiveness of relocations; and the adverse and beneficial effects of the project on local and regional businesses. Representatives express preferences for alternatives that minimize displacement of businesses.

2.3.1.5 *Environmental Organizations*

Environmental advocacy organizations that have provided input to the alternatives development process include the Committee for Green Foothills, Greenbelt Alliance, the Nature Conservancy, Silicon Valley Land Trust, Audubon Society, Ducks Unlimited, Point Blue Conservation Science, the Sierra Club, Pathways for Wildlife, Peninsula Open Space Trust, California Waterfowl Association, and Environmental Defense Fund. These organizations are primarily concerned about impacts on natural resources, including common and special-status species and their habitat; impacts on wetlands, waters, and riparian habitat; impacts on wildlife movement corridors; and impacts on conserved lands and conservation areas; and impacts upon implementation of adopted conservation plans and mitigation obligation. These concerns are similar to those raised by the environmental resource agencies, focusing primarily on areas outside urban areas such as Coyote Valley south of San Jose, east Gilroy agricultural and natural areas, Soap Lake floodplain south of Gilroy, Pacheco Pass, and the San Joaquin Valley, especially the Grasslands Ecological Area, in addition to rivers and streams that cross through both rural and urban areas.

2.3.1.6 *Environmental Justice Outreach*

As part of the Authority's environmental justice engagement, targeted outreach to minority and low-income populations was conducted from scoping through preparation of the Draft EIR/EIS.

Community members raised the following issues related to minority and low-income populations along the project extent:

- San Jose. Concerns were raised about noise and vibration; aesthetics; local road closures on road network connectivity, access, and the proposed narrowing of Monterey Road; residential displacements; property values; parks and trails, and community cohesion and connectivity.
- Morgan Hill. Concerns were raised about local roads and road closures; connectivity, access, and right-of-way; visual aesthetics; residential and commercial displacements, schools; noise; community cohesion and connectivity; and safety (particularly for an at-grade alignment).
- Downtown Gilroy. Concerns were raised about downtown Gilroy and neighborhoods; local roads, connectivity, access, and right-of-way; residential displacements; schools; noise; and historic resources.
- East of Gilroy. Concerns were raised about aesthetics and changes in community character; quality of life; agricultural lands; reduced access to properties, decreased property values, eminent domain, and property acquisitions; induced growth around an East Gilroy Station, and noise.
- Pacheco Pass (unincorporated Merced County): Concerns were raised about local roads, connectivity, access, and right-of-way, and construction effects.
- San Joaquin Valley (unincorporated Merced County): Concerns were raised about noise or travel impacts to schools; connectivity, access, and right-of-way impacts to local roads; displacement of agricultural lands and impacts to associated irrigation infrastructure; impacts to farmworker housing; and impacts to dairy operations.

The Authority considered all input from low-income and minority community members when determining topics to be addressed in the EIR/EIS, alternatives to be considered, and mitigation for identified significant impacts.

2.3.2 *Agency Consultation*

The Authority is working closely with federal, state, and regional agencies to meet regulatory requirements by refining the project alternatives to avoid and minimize impacts and, where necessary, to reach agreement on mitigation measures for impacts that cannot be avoided. Coordination with agencies was conducted throughout development of the Draft EIR/EIS through multiple working groups and one-on-one meetings.

2.3.2.1 Water Resource Agencies

Potential effects on the San Luis Reservoir during initial alternatives development was a concern of the U.S. Bureau of Reclamation (USBR), the California Department of Water Resources (DWR), the California Department of Fish and Wildlife (CDFW), and the California Department of Parks and Recreation. As noted previously, alternatives that would have encroached into the reservoir itself were screened out and were not advanced further. None of the alternatives analyzed in detail in the EIR/EIS would encroach into the reservoir or across the land surface of associated conservation or recreation areas.

USBR, the Santa Clara Valley Water District (SCVWD), and San Benito County Water District have expressed concern about potential project effects on the Pacheco Pass Water Tunnel and Water Conduit and on the Santa Clara and San Benito/Hollister water conduits. The USBR, the Delta Mendota Water Authority, the Central California Irrigation District, Henry Miller Reclamation District, and the Grasslands Water District have also expressed concern about potential project effects on water canals and drains, access roadways, and other infrastructure interfaces in the Pacheco Pass and San Joaquin Valley Subsections. The project has been designed to avoid or minimize disruption to water infrastructure during construction and to replace any affected water infrastructure, access roads, or other associated infrastructure so as to avoid any permanent limitations on water use or associated operations.

2.3.2.2 Transportation Agencies

Caltrans and the California Highway Patrol expressed concern regarding the weigh stations on US 101 (near Gilroy) and I-5 (north of Los Banos) and Caltrans has expressed concern regarding highway interfaces. The weigh station on US 101 near Gilroy was a concern of prior alignments along US 101, but none of the alternatives currently under consideration would affect these facilities. The project alignment in the San Joaquin Valley Subsection was shifted to avoid the I-5 weigh station. The Authority continues to coordinate on the design for areas where the alternatives cross Caltrans facilities.

The Peninsula Corridor Joint Powers Board (Caltrain) has expressed support for extending the blended system to Gilroy while needing to continue to collaborate on station design, operations planning, and other elements of the joint use corridor. The Santa Clara VTA has expressed support for the blending of HSR and Caltrain services to Gilroy but is interested in the interfaces with the VTA light rail system, and HSR station designs. The Transportation Agency for Monterey County expressed support for a shared station facility at Gilroy for future rail services connecting to coastal communities in Monterey County.

Transportation agencies and local city and county public works departments expressed concerns about disruption of automotive traffic and bus transit services on highways and roadways during construction, including I-280, SR 87, US 101, Monterey Road and intersecting roadways, I-5, and SR 152; increase in traffic around new stations; additional traffic congestion caused by a reduction in lanes on Monterey Road and increased safety gate down time at at-grade crossings; and emergency vehicle access. Transportation agencies and public works departments have not expressed preferences for any project alternatives beyond their respective cities.

2.3.2.3 Floodplain Management Agencies

Floodplain management agencies, including SCVWD, and Santa Clara County, San Benito County, and city floodplain administrators are concerned about the potential effects on floodplain and floodway water levels and flood risk management infrastructure, in particular regarding the Guadalupe River, Llagas Creek, the Pajaro River, and the Soap Lake floodplain. The Authority has worked with relevant local floodplain management agencies in evaluating potential project effects, including sharing and collaborating on hydraulic modelling analyses, and consulting on designs at floodplain and floodway interfaces.

2.3.2.4 *Environmental Resource Agencies*

Environmental resource agencies, including the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), the Santa Clara Valley Habitat Agency, the Santa Clara Valley Open Space Authority, Central Valley Habitat Joint Venture, Grasslands Irrigation District, and University of California, Davis³ have expressed concerns about potential effects on common and special-status species and their habitat; wetlands, other waters, and riparian habitat; surface water storage and water conveyance infrastructure, including San Luis Reservoir, Pacheco Pass Water Tunnel and Conduit; Santa Clara and San Benito Conduits; Santa Clara County major water conveyance pipelines and stormwater canals; Delta-Mendota Canal; Merced County irrigation water delivery canals and agricultural wastewater drain canals; public parklands or facilities; floodplains or floodways; wildlife movement corridors, including Coyote Valley, the Pajaro River (i.e., Soap Lake) floodplain, Pacheco Creek, Romero Creek, the GEA, and the San Joaquin Valley in general; and conservation areas in Coyote Valley (Coyote Creek Parkway), Soap Lake (private and public conservation easements and land banks), Pacheco Pass (Cottonwood Wildlife Area, San Luis Reservoir, Pacheco Creek Reserve, Romero Ranch Conservation Easement), and San Joaquin Valley (the GEA, including several wildlife refuges, wildlife management areas, parks, and private duck clubs), and environmental justice assessment. Several initial alternatives would have encroached on the Cottonwood Wildlife Area and the San Luis Reservoir, but they were screened out in favor of the current tunnel alignment in the Pacheco Pass, which would not affect these areas. Alternatives evaluated in the Draft EIR/EIS have been modified through design to avoid and reduce effects on wildlife habitat, waters/wetlands, wildlife movement corridors, and conservation areas in response to the input from environmental resource agencies.

2.3.2.5 *Clean Water Act Section 404/408 Integration Process*

Two important processes that integrate many of the applicable regulatory requirements are CWA Section 404 and Section 408 of the Rivers and Harbors Act, as managed by the USACE with oversight from the USEPA. These laws authorize the USACE to make permit decisions regarding the discharge of dredged or fill material into waters of the U.S. and alterations or modifications to existing federal flood risk management facilities, respectively. To coordinate decision making, the Authority and FRA entered into a NEPA/Section 404/Section 408 Integration Process MOU with the USACE and USEPA (FRA et al. 2010). The MOU outlines three major checkpoints in the integration of the NEPA, Section 404, and Section 408 processes. Each checkpoint consists of the submittal of technical data and studies by the Authority and FRA to the USACE and USEPA for review and consideration prior to issuing a formal written agency response.

- The first of these submittals is Checkpoint A, which involves preparing a project purpose statement that duly serves NEPA and Section 404 requirements. The USEPA and USACE concurred on the project's Purpose and Need in January 2011 to satisfy Checkpoint A.
- The second submittal is Checkpoint B, which involves screening potential project alternatives and determining an appropriate range of "reasonable" and "practicable" alternatives using the best available information. On September 21, 2017, September 26, 2017, January 22, 2019, and February 1, 2019, the USEPA and USACE, provided letters on the project alternatives that the Authority proposed to be carried through the EIR/EIS. Both agencies concurred on the range of four project alternatives to be carried forward in the San Jose to Merced Project Section Draft EIR/EIS.
- The third and final submittal is Checkpoint C, which consists of the assembly and assessment of information contained in the Draft EIR/EIS and associated technical reports for consideration by the USACE and USEPA in determining the preliminary least environmentally damaging alternative (LEDPA) and providing a formal agency response. The documentation includes those

³ Although not a regulatory agency, UC Davis is advising Grassland Irrigation District on matters relative to the Grasslands Ecological Area.

analyses completed to meet requirements of NEPA, CWA Sections 401 and 404, and Section 14 of the Rivers and Harbor Act, which include consideration of compliance with the federal Endangered Species Act and the National Historic Preservation Act. A workshop was held with the USEPA and the USACE on August 9, 2019 to discuss LEDPA considerations in the staff-recommended Preferred Alternative. These agencies will be asked to concur on the preliminary LEDPA for the San Jose to Central Valley Wye Project Extent prior to release of the Draft EIR/EIS.

2.3.3 Feedback on the Staff-Recommended Preferred Alternative

The Authority conducted extensive outreach in July and August 2019 to share the staff-recommended Preferred Alternative with stakeholders and members of the public and to receive their feedback for the Board of Directors to consider when giving staff direction in identifying the Preferred Alternative. A summary of the information in this staff report, including the description of how the alternatives were developed, the alternatives under study, prior stakeholder, public, and agency input; and the evaluation of alternatives in Section 4, Evaluation of Alternatives, was presented to the public and input was solicited in reaction to the staff recommendation. Approximately 300 community members, stakeholders, and agency officials attended briefings and meetings throughout the project corridor during the outreach period in July and August 2019. A summary of the feedback received during the outreach process is provided in the *San Jose to Merced Project Section Preferred Alternative Outreach Summary Report* and associated meeting summaries. Comments from community members, stakeholders, and agency officials may also be presented at the September 17, 2019 Authority Board Meeting.

July 2019

- San Jose-Morgan Hill Technical Working Group
July 8, 2019
- Gilroy-Los Banos Technical Working Group
July 8, 2019
- Morgan Hill-Gilroy Community Working Group
July 10, 2019
- Coyote Valley and Pacheco Pass Conservation Community
July 10, 2019
- Grasslands Ecological Area Stakeholders
July 15, 2019
- San Jose Community Working Group
July 16, 2019
- Morgan Hill City Council
July 17, 2019
- City/County Staff Coordinating Group Meeting
July 17, 2019
- Local Policy Maker Group Meeting
July 25, 2019

August 2019

- San Jose Open House
August 15, 2019
- Gilroy City Council
August 19, 2019
- San Jose City Council
August 20, 2019
- Los Banos Open House
August 21, 2019
- Monterey Corridor Working Group
August 22, 2019
- Gilroy Open House
August 22, 2019

September 2019

- Santa Clara City Council, September 4, 2019
- Santa Clara County Board of Supervisors
September 10, 2019

3 EVALUATION CRITERIA AND METHODOLOGY

This staff report evaluates Alternatives 1, 2, 3, and 4 by comparing the four alternatives across several criteria. Each of the three criteria includes multiple components, as described below. The staff recommendation is based on looking for the best balance between the factors that differentiate the alternatives.

- **Performance; operational and capital costs**—These characteristics affect how the alternatives would perform in implementing the HSR system, as well as the estimated capital and maintenance costs of implementation. Engineering estimates and the system operating plan inform the cost estimates.
- **Community factors**— The evaluation matrix compares the following key factors that differentiate the alternatives. Other community factors that will be considered in the Draft EIR/EIS are considered to be similar in their effects between the alternatives.
 - Displacements
 - Agricultural lands
 - Aesthetics and visual quality
 - Land use and development
 - Noise
 - Transportation including emergency vehicle access/response time⁴
 - Environmental Justice
- **Environmental factors**—The evaluation matrix compares the following key factors that differentiate the alternatives. Other environmental factors that will be considered in the Draft EIR/EIS are considered to be similar in their effects between the alternatives.
 - Biological resources
 - Parks and recreation areas (Section 4(f)/(6(f) resources)
 - Built environment historic resources

Section 4 provides quantitative data (e.g., counts, areas, distances, costs) for most criteria evaluated (e.g., displacements, biological resources, farmland, and noise). The evaluation relies on qualitative comparisons where necessary, such as for land use policy consistency. The tables in Section 4 include only the environmental resources or topics where potential significant adverse impacts substantially differentiate the alternatives. Because all four project alternatives use the same design and alignment in the Pacheco Pass and San Joaquin Valley subsections, the key differences in impacts are associated with differences in design and alignment in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy subsections.

Resources or topics for which potential impacts do not substantially differentiate the alternatives are not included in the tables in Section 4. Their absence does not mean that impacts on these resource areas are not an important part of the EIR/EIS evaluation or that such resources are not of concern to the public, stakeholders, and agencies. All resource areas and community concerns are considered by the Authority as necessary in the CEQA/NEPA process, permitting and final design, construction, and implementation of the high-speed rail program. The following resource areas do not substantially differentiate the alternatives: archaeological resources; air quality and climate change; electromagnetic fields and interference; geology, soils, and seismicity; hazardous materials and waste; hydrology and water quality; paleontological resources; socioeconomics and communities (apart from displacements); regional growth; station planning; and vibration.

⁴ In accordance with Senate Bill 743 (2013) and the CEQA Guideline Updates (December 2018), the Authority does not consider traffic vehicle delay, measured through level of service (LOS) or other metrics, to be a CEQA significant impact. Transportation effects include road closures and the level of mitigation needed to offset impacts that could potentially reduce emergency vehicle response times.

4 EVALUATION OF ALTERNATIVES

The purpose of the San Jose to Central Valley Wye Project is to contribute to completion of the statewide HSR system by providing the public with electric-powered HSR service that offers predictable and consistent travel times between San Jose and the Central Valley, connects the northern and southern portions of the statewide HSR system, and provides enhanced connections to airports, mass transit, and the highway network in Santa Clara County and the San Joaquin Valley, consistent with the Passenger Rail Vision in the California State Rail Plan, including the travel time objectives for the HSR system.

The Authority has responded to its mandate to plan, build, and operate an HSR system that is coordinated with California’s existing transportation network by adopting the following objectives and policies for the proposed HSR system:

- Provide intercity travel capacity to supplement critically overused interstate highways and commercial airports
- Meet future intercity travel demand that will be unmet by current transportation systems and increase capacity for intercity mobility
- Maximize intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel
- Provide a sustainable reduction in travel time between major urban centers
- Increase the efficiency of the intercity transportation system
- Maximize the use of existing transportation corridors and rights-of-way to the extent feasible
- Develop a practical and economically viable transportation system that can be implemented in phases and generate revenues in excess of operations and maintenance costs
- Provide intercity travel in a manner sensitive to and protective of the region’s natural and agricultural resources and reduce emissions and vehicle miles traveled for intercity trips

Guided by the project objectives, the alternatives evaluated for the Draft EIR/EIS incorporate refinements that, when compared to the alternatives studied in the 2010 PAA and the 2011 SAAs and the earlier Checkpoint B evaluations, would avoid or minimize potential impacts on existing facilities, land uses, and environmental resources. In addition, the refinements incorporated from the outreach in 2016 through 2018 would improve project constructability and optimize the HSR system’s operations. The recommended State Preferred Alternative reflects additional engineering, collaborative engagement with communities along the project extent, and environmental studies conducted from 2016 through 2019.

4.1 System Performance, Operations, and Costs

Table 4-1 shows key performance, operations, and cost parameters for the four alternatives evaluated in the EIR/EIS. The best performing alternative is indicated in bold.

Table 4-1 Performance, Operations, and Cost by Alternative

Factor	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Alignment length (miles)	89	89	87	89
Operational Speed (mph)—San Jose to Gilroy	Up to 175	Up to 195	Up to 175	Up to 110
Operational Speed (mph)—Gilroy to Central Valley Wye	Up to 220			
Proximity to transit corridors (miles)	43	50	35	50
Peak hour average representative travel time between San Jose and Gilroy (minutes)	17-18	17-18	16-17	23
Can meet Prop 1A service travel time?	Yes	Yes	Yes	Yes
Estimated capital costs (2017\$ billions) ¹	\$20.5	\$17.7	\$20.8	\$13.6
Estimated annual operations and maintenance costs (2017\$ millions) ²	\$162			

Source: Compiled by Authority 2019

¹ Conceptual cost estimates prepared for the project alternatives were developed by utilizing recent bid data from large transportation projects in the western United States and by developing specific, bottom-up unit pricing to reflect common HSR elements and construction methods with an adjustment for Bay Area and Central Valley labor and material costs. All material quantities for the project alternatives are based on a preliminary 15 percent design. Alternative 4 is the same alternative evaluated in the 2018 Business Plan, but with refined design since the 2018 Business Plan. However, the capital costs outlined reflect a conservative scope and sufficient project footprint to accommodate project refinement through final design for construction documents. This allows the Authority to evaluate maximum impacts in the EIR/EIS and reduces the risk that environmental clearance does not cover all potential impacts. Further, the Authority has not yet applied value engineering and other optimization measures to reduce these costs, including the Early Train Operator benchmarking review, footprint refinement and constructability mitigations.”

² Annual operations and maintenance costs are based on the 2018 Business Plan estimate for the entire Phase 1 system (\$947 million) divided by Phase 1 length (520 miles) and then multiplied by the Alternative 4 alignment length in this project extent. The 2018 Business Plan did not provide separate operations and maintenance costs by different alternatives.

mph = miles per hour

Bold = best performing alternative

As shown in the table, the key differentiators are operational speed, proximity to transit corridors peak hour average representative travel time and capital costs. Alternative 4 has far lower capital costs than the other three alternatives but would have peak hour average representative travel times up to 6 minutes longer between San Jose and Gilroy due to the lower operational speed of blended service within the Caltrain and UPRR corridors rather than the dedicated alignments under Alternatives 1, 2, and 3. Alternatives 2 and 4 would follow existing transportation corridors more closely than Alternative 1 (because of the Morgan Hill Bypass) and Alternative 3 (because of the Morgan Hill Bypass and the East Gilroy alignment). Alignment length and operational speed from Gilroy to the San Joaquin Valley, and operations and maintenance costs would not substantially differ between the four alternatives.

4.2 Community and Environmental Factors Analyses

Table 4-2 shows the individual impacts of the alternatives after mitigation based on the in-progress Draft EIR/EIS environmental analysis. Discussions of key differentiators by topic follow the table. The best performing (lowest impact) alternative is shown in bold.

Table 4-2 Community and Environmental Factors by Alternative

Effects	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Community Factors				
Displacements				
Residential displacements (# of units)	147	603	157	68
Commercial displacements (# of businesses)	217	348	157	66
Agricultural displacements (# structural improvements)	49	53	49	40
Community or public facilities displacement (# of units)	7	8	5	1
Commercial displacements (SF)	411,000	1,800,000	994,000	448,000
Agricultural structure displacements (SF)	407,000	1,206,000	1,489,000	542,000
Agricultural Farmland				
Permanent conversion of Important Farmland (acres) ¹	1,036	1,181	1,193	1,033
Aesthetics and Visual Quality				
Visual quality effects	Viaduct Elevated Stations	Embankment and Viaduct Elevated Stations Roadway Grade Separations	Viaduct Elevated Stations Alignment in Rural Area (East Gilroy)	At-grade alignment Existing Right-of-Way
Land Use and Development				
Consistency with City of Gilroy General Plan policy encouraging Transit-Oriented Development (TOD) in downtown station area	Yes	Yes	No	Yes
Noise				
Severe noise impacts with noise barrier mitigation (# of sensitive receptors)	231	194	173	275
Severe noise impacts with noise barrier mitigation and if local municipalities implement quiet zones (# of sensitive receptors)	223	194	173	179
Traffic				
Increase in 2040 peak travel time in Monterey Corridor (NB—AM/PM, SB—AM/PM, minutes)	NB—8/20 SB—6/12	NB—27/5 SB—16/17	NB—8/20 SB—6/12	NB—0/5 SB—1/8
Permanent road closures – San Jose to Gilroy	10	19	8	8

Effects	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Permanent road closures – Gilroy to Carlucci Road	7			
Emergency Vehicle Access/Response Time				
Areas of potential delay to emergency vehicle response times	Monterey Corridor due to Monterey Road narrowing		Monterey Corridor, Morgan Hill, Gilroy due to gate-down time	
Types of mitigation needed to minimize emergency vehicle delays	Vehicle detection equipment		Vehicle detection equipment, additional emergency equipment for existing fire stations, new fire stations, and potentially additional ambulance services	
Environmental Justice (EJ)¹				
EJ proportion of total significant and unavoidable impacts on local views. ²	50%	NA³	67%	NA³
EJ proportion of total residential displacements	60%	66%	50%	50%
EJ proportion of total business displacements	87%	92%	82%	83%
Comparative level of increase on fire department response times (lower number is less delay)	1	3	1	4
EJ proportion of total moderate and severe noise impacts ⁴	49%	65%	45%	76%

¹ Criteria used for evaluation are those subjects where the in-progress EIR/EIS analysis indicates disproportionate impacts to low income and minority populations.

² As indicated by impacts on visual landscape units.

³ These alternatives have no significant and unavoidable impacts on visual landscape units.

⁴ Noise impacts after noise barrier mitigation.

Environmental Factors

Biological Resources				
Permanent impacts on jurisdictional waters and wetlands (acres)	104	111	116	101
Permanent impacts on habitat for special-status plant species (non-overlapping acres)	1,171	1,178	1,183	1,146
Permanent impacts on habitat for listed wildlife species with the most impacts overall (California tiger salamander, acres)	2,273	2,329	2,471	2,146

Effects	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Wildlife corridor impacts	Avoids east Gilroy; fewer Soap Lake floodplain impacts	Avoids east Gilroy; fewer Soap Lake floodplain impacts	Impacts in East Gilroy; more impacts in Soap Lake floodplain	Avoids east Gilroy; fewer Soap Lake floodplain impacts
Permanent impacts on conservation areas (acres)	427	432	481	427
Section 4(f)/6(f) Resources				
Permanent use of 4(f)/6(f) park resources (#[acres])	4 (4.8)	6 (7.4)	5 (5.0)	3 (1.4)
Built Environment Historic Resources				
Number of permanent adverse effects on NRHP-listed/eligible resources (# of resources)	8	9	7	5
Number of permanent significant impacts on CEQA-only historic resources (# of resources)	2	4	1	1

Source: Compiled by Authority 2019

AM = morning

NB = Northbound

NRHP = National Register of Historic Places

PM = evening

SB = Southbound

SF = square feet

¹ Important Farmland includes Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.

Bold = best performing alternative

4.3 Review of Key Differentiators by Subsection

This section describes key community and environmental factors that differentiate the alternatives within each subsection of the project extent. Alternatives 1, 2, 3, and 4 vary in the San Jose Diridon Station Approach, Monterey Corridor, and Morgan Hill and Gilroy Subsections. Because the alternatives are identical in the Pacheco Pass and San Joaquin Valley Subsections, those subsections are not discussed. Community and environmental factors shown in Table 4-2 that do not substantially differentiate alternatives in a given subsection are not included in the discussion. For example, because there are no agricultural lands in the San Jose Diridon Station Approach Subsection, that resource is not discussed for that subsection.

4.3.1 San Jose Diridon Station Subsection

- **Displacements**— Alternative 4 would have the lowest number of displacements (24) because of the alignment’s primary location within the Caltrain right-of-way and its at-grade profile, whereas Alternatives 2 and 3 would have the most displacements (142 and 141 respectively for each Alternative) because of the viaduct design outside of the existing rail right-of-way. Alternative 1 would have more displacements (89) than Alternative 4 but less than Alternatives 2 and 3 because the viaduct section would end at I-880 instead of Scott Boulevard.
- **Aesthetics and visual quality**—Alternative 4 would have the lowest operational impact on aesthetics and visual quality because it would be located at grade mostly within the Caltrain right-of-way. Alternative 1 would have more impacts on visual quality than Alternative 4 because it would be on an elevated viaduct (to I-880) outside existing rail rights-of-way through most of San Jose. Alternatives 2 and 3 would have the highest impacts on visual quality because they would be on elevated viaduct outside existing rail rights-of-way through Santa Clara and downtown San Jose (approximately 2 more miles of viaduct than Alternative 1).

- **Noise**—Alternative 4 would have higher operational noise impacts than the other alternatives because it would result in the sounding of HSR train horns at two at-grade crossings south of the San Jose Diridon Station, while the other project alternatives would not. Alternative 4 and Alternative 1 would also result in sounding of HSR train horns when passing through the Santa Clara Station while Alternatives 2 and 3 would not.
- **Environmental justice**—Alternative 4 and Alternative 1 would have the lowest operational aesthetics and visual quality, community cohesion, and displacement impacts on minority and low-income populations in Santa Clara because they would be at grade, mostly within the Caltrain right-of-way. Alternatives 2 and 3 would have the highest impacts on aesthetics and visual quality because they would be on an elevated viaduct from Tamien to Scott Boulevard. Alternative 4 and Alternative 1 would result in HSR sounding horns when going through the Santa Clara Caltrain station, while Alternatives 2 and 3 would not.

Alternative 4 would have lowest impacts relative to aesthetics and visual quality and displacement on minority and low-income populations in and south of downtown San Jose because it would be located at grade, mostly within the Caltrain right-of-way. Alternatives 1, 2 and 3 would have more aesthetic and visual quality and displacement impacts than Alternative 4 because they would be on an elevated viaduct (to I-880) outside existing rail rights-of-way through most of San Jose. Alternative 4 would have higher noise impacts than the other alternatives because it would result in the sounding of HSR train horns at two at-grade roadway crossings south of the San Jose Diridon Station while the other project alternatives would not. Alternative 4 would have greater effects on community cohesion in the North Willow Glen and Gardner neighborhood of the alternatives, while Alternatives 1, 2 and 3 would have greater effects than Alternative 4 on community cohesion of the neighborhood east of the Caltrain right of way along Auzerais Avenue.

- **Section 4(f)/6(f) resources**—Alternative 1, 2, and 3 would have permanent effects on portions of Los Gatos Creek Trail and Park (0.55 acres each) and the Guadalupe River Trail (0.8 acres each). Alternatives 2 and 3 would also affect a portion of Reed Street Park (0.18 acres each). Alternative 4 would affect portions of Los Gatos Creek Trail and Park (1.03 acres) as well as a small (0.03-acre) portion of Fuller Park.
- **Built environment historic resources**—All four project alternatives would have a permanent significant and unavoidable impact on the San Jose Diridon Station and 75 South Autumn Street. Alternatives 1, 2, and 3 would also have a permanent significant and unavoidable impact on the Sunlite Baking Company and 415 Illinois Ave.

4.3.2 Monterey Corridor Subsection

- **Displacements**—Alternative 4 would have the lowest number of permanent displacements (3) due to the alignment's location within the Caltrain right-of-way as much as feasible and its at-grade profile, whereas Alternative 2 would have the highest number of displacements (73) because of the embankment design outside of the existing rail right-of-way and the displacements associated with roadway grade separations. Alternatives 1 and 3 would have more displacements (46 for each Alternative) than Alternative 4 but less than Alternative 2 because they would have a viaduct design and not require as many roadway grade separations.
- **Aesthetics and visual quality**—Alternative 4 would have the least operational impact associated with aesthetics and visual quality because it would be located at grade mostly within the existing railroad right-of-way. Alternatives 1 and 3 would have greater impacts than Alternative 4 because they would be on elevated viaduct outside existing rail rights-of-way. Alternative 2 would have less impacts than Alternatives 1 and 3 because it would be on an embankment outside existing rail rights-of-way.
- **Noise**—Alternative 4 would have more operational noise impacts than the other alternatives because it would result in the sounding of HSR train horns at the at-grade crossings and Caltrain stations south of the San Jose Diridon Station (Blossom Hill, Capitol) while the other project alternatives would not.

- **Traffic**—Alternative 4 would result in substantially lower additional peak hour travel time delay on Monterey Road because it would not permanently reduce travel lanes from six lanes as would Alternatives 1, 2, and 3.
- **Environmental justice**—Alternative 4 would have the lowest impacts on minority and low-income populations associated with aesthetics and visual quality, community cohesion, and displacements because it would be located at grade mostly within the existing railroad right-of-way. Alternatives 1 and 3 would have more impacts than Alternative 4 because they would be on elevated viaduct located outside existing rail rights-of-way. Alternative 2 would have the most impacts on aesthetics and visual quality because it would be located on embankment outside existing rail rights-of-way and would include large grade separation structures. Alternative 4 would have higher noise impacts than the other alternatives because it would result in the sounding of HSR train horns at the at-grade crossings and Caltrain stations south of the San Jose Diridon Station (Blossom Hill, Capitol) while the other project alternatives would not.
- **Section 4(f)/6(f) resources**—All alternatives would affect a portion of the Coyote Creek Parkway. Alternative 4 would have the least effect (0.31 acres) and Alternative 2 would have the most effect (3.34 acres), with Alternatives 1 and 3 in between (2.42 acres each). Alternatives 1, 2, and 3 would affect a portion of the Coyote Creek Trail (Alternatives 1 and 3 – 1.03 acres; Alternative 2 – 1.2 acres), but Alternative 4 would not.
- **Emergency vehicle access/response time**—Alternatives 1, 2, and 3 would result in increased travel times along Monterey Road during morning and evening peak periods due to the narrowing of Monterey Road from six lanes to four, but vehicle detection mitigation would reduce effects on emergency vehicle response times to a less-than-significant level. Alternative 4 could increase emergency response times by more than 30 seconds in a portion of the service area for one fire station (4430 Monterey Road) and for the Kaiser Permanente San Jose Medical Center as a result of increased gate-down time at at-grade crossings. This potential impact will be re-evaluated prior to HSR service start date to determine if the impact actually will occur and its exact scope. Mitigation to reduce any confirmed impact to a less-than-significant level is possible with vehicle detection mitigation and if the City of San Jose chooses to construct and operate a new fire station and install new responder equipment at existing fire stations with funding provided by HSR.

4.3.3 Morgan Hill and Gilroy Subsection

- **Displacements**— Alternative 4 would have the lowest number of displacements (81) due to its location within the Caltrain corridor right-of-way as much as feasible and the at-grade alignment, whereas Alternative 2 would have the most displacements (730) due to the embankment design outside the existing rail right-of-way and due to the displacements associated with roadway grade separations which would also result in the most effects on community cohesion, particularly in downtown Gilroy. Alternative 1 would have more displacements (218) than Alternative 4 because it would be located outside the existing rail right-of-way. Alternative 3 would have the second lowest number of displacements (114) because it would avoid downtown Gilroy compared to Alternatives 1 and 2.
- **Agricultural farmland**—The project alternatives would differ in the acreage of permanent conversion of agricultural land only in this subsection. Alternative 4 would permanently convert the smallest amount of agricultural farmland because this alternative would minimize land use displacement and conversion by staying predominantly within the existing transportation corridor right-of-way. Alternative 3 would permanently convert the largest area of agricultural farmland because it would pass through the eastern portion of Santa Clara County and bypass the urban area of Gilroy. Alternative 4 and Alternatives 1 and 2 would pass through downtown Gilroy and would thus avoid some agricultural farmland. However, Alternative 2 would require relocation of the UPRR tracks, resulting in impacts on agricultural farmland. Alternative 1 would be built on viaduct in the median of Monterey Road for a portion of its length and would pass through downtown Gilroy, thus avoiding some of the agricultural farmland in the subsection.

- **Aesthetics and visual quality**—Alternative 4 would have the lowest impact on aesthetics and visual quality because of its location at grade mostly within the UPRR right-of-way. Alternative 1 would have higher impacts than Alternative 4 because it would be on an elevated viaduct outside rail rights-of-way through Gilroy and would have an elevated HSR station. Alternative 2 would have the highest visual impacts in Gilroy because it would be on an elevated embankment, would have an elevated station, and would require construction of roadway grade separations. While Alternative 3 would avoid aesthetic and visual quality impacts in downtown Gilroy, it would affect visual quality in east Gilroy with a guideway on viaduct and embankment and an HSR station at a greenfield site. The effects of Alternative 3 would be experienced by fewer community members than those affected by project alternatives in downtown Gilroy.
- **Land Use and development** - The Authority has adopted a station area policy to locate stations in downtown, multi-modal transportation hubs and not greenfield sites in order to promote connections to transit, to support transit-oriented development, and to avoid conversion of agricultural and open space lands to urban or transportation uses. Alternative 3 includes the East Gilroy Station which is located outside of Gilroy in an agricultural area and is not consistent with Authority policy. Alternatives 1, 2, and 4 would result in conversion of commercial and mixed land uses to transportation uses in downtown Gilroy due to their location, whereas Alternative 3 would not. However, Alternative 3 would convert more agricultural lands to transportation uses due to its alignment in East Gilroy and East Gilroy station.
- **Noise**—Alternative 4 would have the most noise impacts because it would result in HSR trains sounding horns at the at-grade crossings and the Morgan Hill, San Martin, and Gilroy Caltrain Stations, whereas the other project alternatives would not.
- **Environmental justice**—Alternative 4 would have the lowest impacts on minority and low-income populations in Morgan Hill associated with aesthetics and visual quality, community cohesion, and displacements because it would be located at grade mostly within the existing railroad right-of-way. Alternatives 1 and 3 would have greater impacts than Alternative 4 because they would be on an elevated viaduct outside existing rail rights-of-way through Morgan Hill, although these alternatives would not pass through downtown Morgan Hill. Alternative 2 would have the most impacts on minority and low-income populations in Morgan Hill because it would be on an elevated embankment outside existing rail rights-of-way through Morgan Hill and would require displacements because of construction of roadway grade separations. Alternative 4 would have higher noise impacts than the other alternatives because it would result in the sounding of HSR train horns at the at-grade crossings and the Morgan Hill Caltrain station while the other project alternatives would not.

Downtown Gilroy has the highest rates of minority and low-income populations in the resource study area identified for environmental justice (more than 85 percent minority and 60 percent low-income). Alternative 3 would avoid downtown Gilroy and would have no effect on minority populations and low-income populations there, whereas Alternative 1, Alternative 2, and Alternative 4 would result in higher impacts on minority and low-income populations. Of the project alternatives that pass through downtown Gilroy, Alternative 4 would result in the least impacts on minority and low-income populations associated with aesthetics and visual quality, community cohesion, and displacement due to its location at grade mostly within the UPRR right-of-way. Alternative 2 would have the most displacement impacts of the downtown Gilroy alternatives because it would be on embankment, would include an elevated station, and would require construction of roadway grade separations which would also have the most effect on community cohesion of the alternatives. Alternative 4 would have the most noise impacts because it would result in HSR trains sounding horns at the at-grade crossings and the Gilroy Caltrain Station, whereas the other project alternatives would not. While Alternative 3 would avoid impacts in downtown Gilroy, it would affect visual quality and community cohesion in east Gilroy, although these impacts would be experienced by fewer community members with a lower percentage of minority and low-income populations than those affected by the project alternatives in downtown Gilroy. Alternative 3 would result in more conversion of agricultural farmland and have higher impacts on agricultural employment than the other project alternatives.

- Biological resources**—Alternative 4 would have the least impacts on natural resources because it has a narrow footprint that is primarily within an existing railroad right-of-way and it travels through downtown Morgan Hill and Gilroy instead of east Gilroy. Alternative 1 would have higher impacts than Alternative 4 for most natural resources because it would not use an existing railroad right-of-way and would have a longer alignment outside of an existing transportation corridor (due to the Morgan Hill bypass). Alternative 2 would have higher impacts than Alternative 4 for most natural resources because it has a wider footprint (using an embankment) and more extensive roadway modifications than Alternative 4. Alternative 3 would have higher impacts on biological and aquatic resources than Alternative 4 because it would not use an existing railroad right-of-way and because of its routing via the Morgan Hill bypass and through the agricultural and less developed areas in east Gilroy, contrasted with the more urban routing of Alternative 4 through downtown Morgan Hill and downtown Gilroy.
- Section 4(f)/6(f) resources**—Alternative 2 would affect a portion of the Morgan Hill Community and Cultural Center (1.31 acres).
- Built environment historic resources**—Alternative 4 would have a significant and unavoidable impact on the Madrone Underpass and the Live Oak Creamery. Alternative 3 would have a significant and unavoidable impact on the Stevens/Fisher House and the San Martin Winery. Alternative 1 would have a significant and unavoidable impact on the Stevens/Fisher House, the San Martin Winery, the Live Oak Creamery, and the St. Stephens School. Alternative 2 would have a significant and unavoidable impact on the Coyote Depot Complex, the Stevens/Fisher House, the Cribari Winery, the St. Martin Winery, the Live Oak Creamery, the St. Stephens School, and the IOOF Orphanage Home.
- Emergency vehicle access/response time**—Alternative 4 could result in increased emergency response times of more than 30 seconds in a portion of the service areas for five fire stations (15670 Monterey Road, 10810 No Name Uno, 880 Sunrise Drive, 8383 Wren, and 7070 Chestnut Street) as well as response times for the Kaiser Permanent San Jose Medical Center and the St. Louise Regional Hospital due to increased gate-down time at at-grade crossings. This potential impact will be re-evaluated prior to HSR service start date to determine if the impact actually will occur and its exact scope. Mitigation to reduce any confirmed impact to a less-than-significant level is possible with vehicle detection mitigation and if the City of San Jose chooses to construct and operate a new fire station and install new responder equipment at existing fire stations with funding provided by HSR. The other alternatives would not result in this impact.

4.4 Additional Considerations

In addition to the operational performance, community factors, and environmental factors, the Authority also considered the compatibility of the alternatives with directly relevant transportation projects or plans between Santa Clara and Gilroy.

- Caltrain Peninsula Corridor Electrification Project**—All of the alternatives are designed to be compatible with the Caltrain electrification project.
- Caltrain Business Plan and Service Vision** —Caltrain is currently developing a Business Plan to address forecasted increases in travel demand and ridership, and the long-term goal of southern Santa Clara County communities for more regular rail service. One of the concepts in the Caltrain Business Plan is to extend electrification and increase service to Gilroy. Alternative 4 is the only alternative that would provide for an extension of electrification and other infrastructure to support increased regional passenger rail service to Gilroy.
- BART Silicon Valley Extension**—All of the alternatives would accommodate the planned extension of BART to San Jose, including BART stations at Diridon Station and in Santa Clara.
- State Rail Plan and Other Passenger Rail Service Planning**—The Authority has consulted the State Rail Plan and with other passenger rail providers so that the alternatives would not impede plans for expansion of ACE, Capitol Corridor, and TAMC (Monterey County Rail Extension)

passenger rail service. All of the alternatives would provide adequate capacity at the San Jose Diridon Station and the Gilroy Station for the planned expansions of other passenger rail services.

4.5 Overall Assessment

Implementing the four project alternatives in the subsections between Santa Clara and Gilroy would lead to four relatively different sets of environmental impacts and costs. In summary:

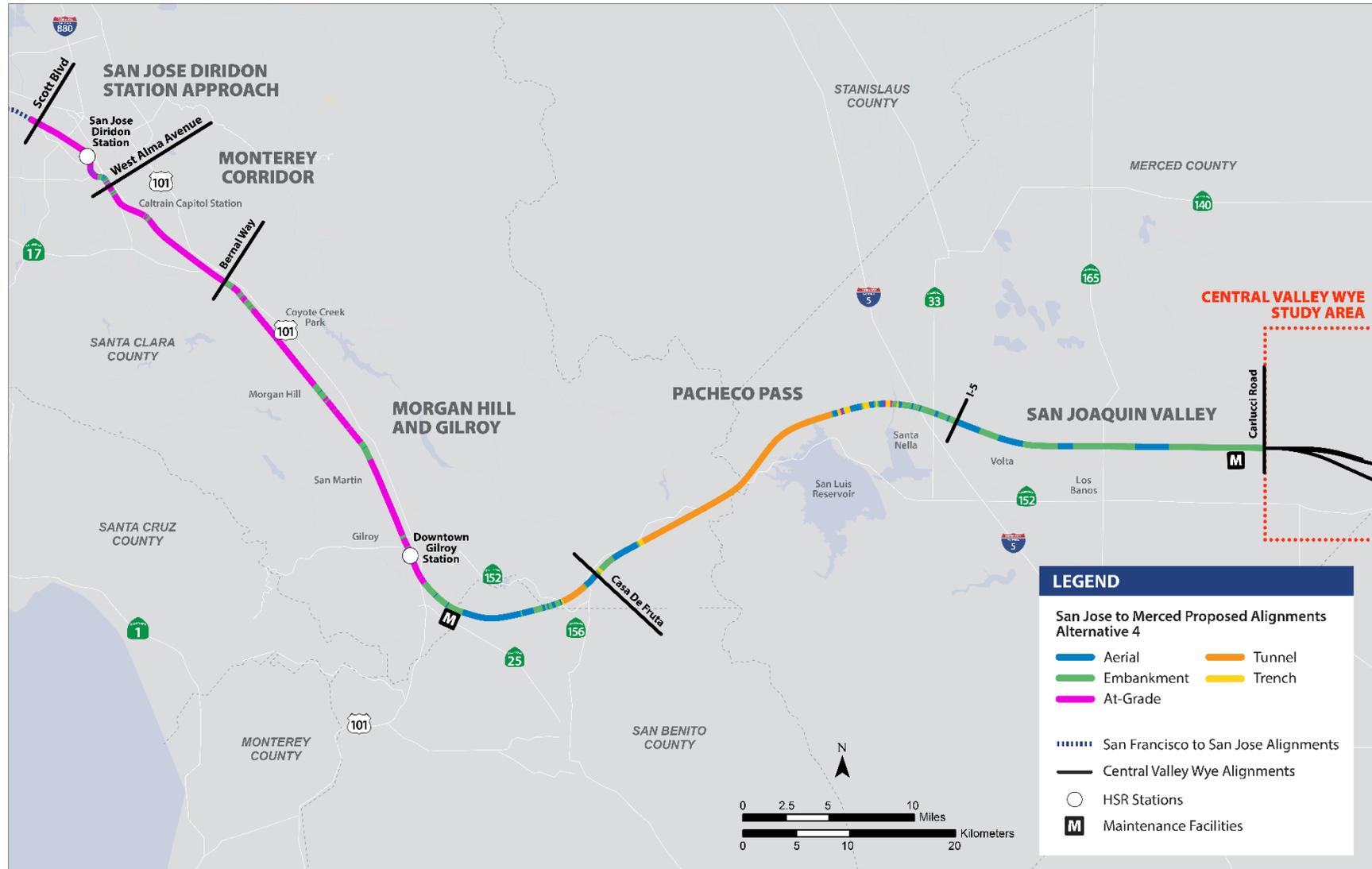
- Alternative 1 would have the lowest impacts relative to commercial and agricultural structural displacements in terms of area (square feet). It would have the most number of residual noise impacts (with noise barrier mitigation and local quiet zone implementation). The predominant factors contributing to the impacts of Alternative 1 are its use of elevated viaduct between San Jose and Gilroy, its alignment bypassing downtown Morgan Hill, and its alignment through downtown Gilroy. It has the second highest capital cost. It would have less alignment in proximity to existing transit corridors compared to Alternatives 2 and 4, but more than Alternative 3.
- Alternative 2 would not be the single best performing alternative relative to any community or environmental factors. It would have the most impacts on Section 4(f)/6(f) resources, built environment historic resources, displacements, roadway travel times on Monterey Road, road closures, aesthetics and visual quality, and minority and low-income populations. The predominant factors contributing to the impacts of Alternative 2 relative to the other alternatives are its use of elevated embankment between San Jose and Gilroy, its alignment through downtown Morgan Hill and Gilroy, and the construction of roadway grade separations. Alternative 2 would have the second lowest capital cost. Along with Alternative 4, it would have the most alignment in proximity to existing transit corridors.
- Alternative 3 would have the lowest impact on CEQA-only built environment historic resources (along with Alternative 4) and operational noise severe impacts. It would have the highest impacts on waters and wetlands, habitat for special-status plant and wildlife species, wildlife movement corridors, conservation areas, and agricultural farmland. The predominant factors contributing to the impacts of Alternative 3 are its use of elevated viaduct between San Jose and East Gilroy, its alignment bypassing downtown Morgan Hill and Gilroy, and its alignment through east Gilroy. Alternative 3 would have the highest capital cost. It would have the least amount of alignment in proximity to existing transit corridors.
- Alternative 4 would have the lowest impacts on number of displacements, biological resources, Section 4(f)/6(f) resources, aesthetics and visual quality, agricultural farmland, and built environment resources. It would have the most noise impacts from project operation if local jurisdictions choose not to implement quiet zones, but the second lowest noise impacts of the alternatives if noise barrier mitigation and quiet zones are implemented. It would have the highest effects on intersection traffic delay/LOS, but would have the lowest effects on travel times along Monterey Road in San Jose. It could have the highest impact on emergency vehicle response times due to increased gate-down time at the at-grade crossings associated with HSR rail operations, but this could be mitigated with new fire stations and new response equipment for which HSR would provide funding. The predominant factors contributing to the impacts of Alternative 4 relative to the other alternatives are alignment at grade mostly within existing rail rights-of-way between San Jose and Gilroy and its alignment through downtown San Jose, downtown Morgan Hill, and downtown Gilroy. It is the alternative with the lowest capital cost. It, along with Alternative 2, would have the most alignment in proximity to existing transit corridors. Alternative 4 would also provide the opportunity to extend electrified Caltrain service to Gilroy.

5 RECOMMENDATION

Based on the factors discussed in this report and the Draft EIR/EIS, the staff identified Alternative 4 as the best choice for the San Jose to Central Valley Wye Project Extent and overall HSR system (Figure 5-1) and so recommends that Alternative 4 be identified as the Preferred Alternative. The Preferred Alternative for the Draft EIR/EIS includes the preferred system sites listed in Appendix B.

The key considerations in making this recommendation are:

- While there are relative differences between the way each of the four alternatives would impact various community resources, Alternative 4 would have the lowest overall impacts because it would result in the least number of displacements of residences, businesses, community facilities, and agricultural structures; would result in the least conversion of agricultural farmland to nonagricultural uses (and thus would have the lowest impact on agricultural employment); and would cause the least change in aesthetics and visual quality. Alternative 4 would have the most noise impacts (with noise barrier mitigation only), but the lowest impacts on Monterey Road travel times. While Alternative 4 would potentially have the most impact on emergency vehicle response times, this could be mitigated by the Authority working with local jurisdictions to construct and operate new fire stations and install new responder equipment at existing stations. The other project alternatives would have greater impacts than Alternative 4 in terms of key community resources, with the exception of noise.
- Alternative 4 would result in the lowest impacts on key natural environmental factors of the four project alternatives, such as wetlands and other aquatic habitats, which provide high-value habitat for a diverse array of species. Alternative 4 is also the alternative most likely to receive support for permitting by the U.S. Army Corp of Engineers under the Clean Water Act as being the least impactful to wetlands. Alternative 4 would have the lowest impacts of the four project alternatives on high-value aquatic habitats and habitat for special-status plant and wildlife species.
- Alternative 4 would result in the lowest impacts from permanent use of Section 4(f) parks and NRHP-listed or eligible built environment historic resources.
- Alternative 4 is the lowest-capital cost alternative.



Source: Compiled by Authority 2019

DRAFT JULY 2019

Figure 5-1 Alternative 4: Staff-Recommended Preferred Alternative

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APPENDIX A: PUBLIC AND AGENCY MEETINGS, MAY 2011–DECEMBER 2018

Table A-1 Public and Agency Meetings Summary, May 2011–September 2013

Organization/Individual	Number of Meetings Held	Meeting Dates
ACE	1	2/15/2013
Advancing Women in Transportation	1	2/6/2013
Altamont Corridor Express	1	2/5/2013
Bay Area Council	1	7/25/2012
Bay Area/MTC Peninsula Working Group	1	2/13/2013
BIA	3	6/12/2012, 6/12/2013, 6/27/2013
California State Rail Plan	1	2/14/2013
Caltrain	3	2/8/2013, 3/4/2013, 8/2/2013
Caltrans NAAC	5	5/16/2012, 8/1/2012, 3/20/2013, 5/8/2013, 7/31/2013
Capitol Corridor	1	2/15/2013
CDFG	1	2/15/2013
City of Gilroy	4	9/28/2011, 4/23/2012, 1/24/2013, 4/12/2013
City of Morgan Hill	1	4/23/2012
CWG	4	5/14/2011, 5/26/2011, 6/28/2011, 7/18/2011
Diridon Station Policy Advisory Board	3	6/15/2012, 11/16/2012
Dos Palos cotton gin	1	5/1/2013
Environmental Groups, San Jose	1	6/11/2012
Gilroy Chamber of Commerce	1	11/14/2011
Gilroy Unified School District	1	11/7/2011
Holsclaw Road Contacts	1	9/5/2012
International Right of Way Agents	2	2/13/2013, 4/3/2013
Joint Stakeholder Meeting, Chowchilla	1	1/9/2012
Local Agency Formation Commission of Santa Clara County	1	6/28/2012
Lower San Joaquin Levy District	1	5/1/2013
McCarthy Business Park	1	5/5/2011
Mineta Transportation Institute Student Group	1	2/28/2013
Morgan Hill Unified School District	1	12/6/2012
NAHC	1	6/13/2012
Preserve Our Heritage	3	5/17/2011, 5/27/2011, 6/24/2011
Public Open House Meetings	3	5/19/2011, 5/25/2011, 6/13/2011
Rotary	1	1/17/2012

Organization/Individual	Number of Meetings Held	Meeting Dates
Salinas Valley Chamber	1	1/26/2012
San Benito Council of Government	1	2/7/2013
San Jose Chamber of Commerce	3	5/16/2012, 5/18/2012, 6/29/2012
San Jose Spanish-speaking group	1	11/7/2011
San Martin Stakeholder Meeting	1	9/20/2012
San Mateo County Economic Development Association	1	7/25/2012
Santa Clara County Fair	1	8/5/2011–8/7/11
Santa Clara County Supervisors	4	4/25/2012, 6/28/2012, 12/21/2012, 3/20/2013
Senator Leland Yee's Office	1	2/8/2013
Silicon Valley Economic Development Alliance	1	5/4/2011
Silicon Valley Leadership Group	1	7/25/2012
Silver Leaf Neighborhood Association	1	6/25/2011, 6/9/2012
South Bay Transportation Officials Association	1	6/11/2013
South Santa Clara County Community Engagement Workshops	4	6/16/2011, 6/23/2011, 9/29/2011, 10/11/2011
TAMC	3	8/1/2011, 2/4/2013 (2)
Taste of Morgan Hill	1	9/24/2011–9/25/2011
Town Hall Meetings	2	11/4/2010, 12/8/2011
Tribal Organizations and Contacts	15	7/22/2010, 8/16/2010, 9/29/2010, 10/11/2010, 10/12/2010, 12/15/2010, 1/8/2011, 1/19/2011, 3/14/2012, 6/12/2012, 6/18/2013, 6/26/2013 (3), 9/3/2013
TWGs	2	4/26/2012, 8/15/2012
U.S. Congress	2	5/6/2011, 2/12/2013
United Architects of the Philippines	1	2/16/2013
UPRR	1	8/20/2013
USBR	1	10/21/2010
USEPA	2	10/5/2009, 2/10/2010
VTA	1	2/19/2013

Source: Compiled by ICF 2018

ACE = Altamont Corridor Express

BART = Bay Area Rapid Transit

BIA = Bureau of Indian Affairs

CalSTA = California State Transportation Agency

Caltrans = California Department of Transportation

CCID = Central California Irrigation District

CDFG = California Department of Fish and Game (to 12/13/2012)

CDFW = California Department of Fish and Wildlife (from 1/1/2013)

CWG = community working group

DWR = California Department of Water Resources

FRA = Federal Railroad Administration

RWQCB = Regional Water Quality Control Board

SCVWD = Santa Clara Valley Water District

SLDMWA = San Luis and Delta Mendota Water Authority

SPUR = San Francisco Bay Area Planning and Urban Research Association

STB = Surface Transportation Board

SWRCB = State Water Resources Control Board

TAMC = Transportation Agency for Monterey County

TWG = technical working group

UPRR = Union Pacific Railroad

USACE = U.S. Army Corps of Engineers

USBR = U.S. Bureau of Reclamation

MTC = Metropolitan Transportation Commission
 NAAC = Native American Advisory Committee
 NAHC = Native American Heritage Commission
 NMFS = National Marine Fisheries Service

USDOT = U.S. Department of Transportation
 USEPA = U.S. Environmental Protection Agency
 USFWS = U.S. Fish and Wildlife Service
 VTA = (Santa Clara) Valley Transportation Authority

Table A-2 Public and Agency Meetings Summary, October 2013–February 2016

Organization/Individual	Number of Meetings Held	Meeting Dates
Agency Tour	1	11/19/2014
CalSTA	1	6/18/2015
Caltrans NAAC	10	10/23/2013, 3/12/2014, 5/28/2014, 8/27/2014, 10/17/2014, 11/12/2014, 2/18/2015, 5/13/2015, 8/12/2015, 11/18/2015
City of San Jose	1	12/17/2015
NAHC	1	1/17/2014
Office of the Governors Tribal Liaison	1	11/20/2014
Community Open Houses	2	9/15/2015, 9/23/2015
Tribal Organizations and Contacts	6	10/25/2013, 12/17/2015, 2/3/2016 (2), 2/12/2016 (2)
USEPA and USACE	3	11/12/13, 11/26/2013, 12/3/2013

Source: Compiled by ICF 2018

CalSTA = California State Transportation Agency
 Caltrans = California Department of Transportation
 NAAC = Native American Advisory Committee

NAHC = Native American Heritage Commission
 USACE = U.S. Army Corps of Engineers
 USEPA = U.S. Environmental Protection Agency

Table A-3 Public and Agency Meetings Summary, March 2016–December 2018

Organization/Individual	Number of Meetings Held	Meeting Dates
Artega's Food Center	1	4/18/2017
BAC	1	11/8/2017
BART	5	2/13/2017, 2/23/2017, 4/7/2017, 5/25/2017, 6/22/2017
California State Legislators	5	10/5/2016, 10/6/2016, 11/29/2016, 8/1/2017, 9/24/2018
California Strategic Growth Council	9	6/28/2017, 1/10/2018, 2/13/2018, 2/14/2018, 2/21/2018, 3/15/2018, 3/23/2018, 4/18/2018, 4/27/2018
Caltrain	20	6/10/2016, 6/24/2016, 7/8/2016, 7/22/2016, 7/28/2016, 10/28/2016, 12/9/2016, 2/23/2017, 9/8/2017, 9/25/2017, 4/18/2018, 6/5/2018, 7/5/2018, 7/18/2018, 7/24/2018, 8/23/2018, 9/5/2018, 9/27/2018, 10/25/2018, 12/20/2018
Caltrans	19	2/9/2017, 2/23/2017, 3/9/2017, 3/23/2017, 4/13/2017, 4/27/2017, 5/11/2017, 7/27/2017, 8/10/2017, 9/7/2017, 9/14/2017, 10/19/2017,

Organization/Individual	Number of Meetings Held	Meeting Dates
		10/26/2017, 11/9/2017, 12/14/2017, 1/17/2018, 5/2/2018, 7/17/2018, 7/20/2018
Caltrans NAAC	2	3/9/2016, 11/16/2016
Capitol Corridor	1	7/28/2016
CCID	2	5/31/2017, 8/9/2017, 1/24/2018
Connecting Communities Strategy-Morgan Hill	1	9/21/2018
CDFW	13	10/13/2016, 11/8/2016, 12/8/2016, 12/16/2016, 1/19/2017-1/20/2017, 2/23/2017, 2/24/2017, 3/24/2017, 5/5/2017, 5/24/2017, 6/28/2017, 7/15/2017, 8/16/2017
CHP	1	1/17/2018
City of Gilroy	15	6/23/2016, 7/27/2016, 10/20/2016, 11/14/2016, 2/21/2017, 3/8/2017, 4/12/2017, 5/24/2017, 7/10/2017, 8/2/2017, 8/30/2017, 4/26/2018, 6/8/2018, 7/20/2018, 8/24/2018
City of Morgan Hill	11	6/7/2016, 6/23/2016, 7/14/2016, 8/2/2016, 8/24/2016, 8/2/2017, 1/31/2018, 7/12/2018, 8/15/2018, 6/15/2018, 6/26/2018
City of San Jose	69	5/10/2016, 6/6/2016, 6/8/2016, 6/22/2016, 7/13/2016, 7/27/2016, 8/10/2016, 8/23/2016, 8/24/2016, 9/9/2016, 9/13/2016, 9/14/2016, 9/21/2016, 9/28/2016, 10/25/2016, 11/9/2016, 11/14/2016, 11/22/2016, 12/7/2016, 12/21/2016, 1/25/2017, 1/31/2017, 2/8/2017, 2/22/2017, 3/22/2017, 3/24/2017, 4/12/2017, 4/26/2017, 5/3/2017, 5/10/2017 (2), 5/17/2017, 5/24/2017, 5/31/2017, 6/7/2017, 6/14/2017 (2), 6/21/2017, 6/22/2017, 6/28/2017, 7/7/2017, 7/12/2017, 7/19/2017, 7/26/2017, 8/2/2017, 8/9/2017 (2), 8/16/2017, 8/23/2017 (2), 8/30/2017, 9/6/2017 (2), 9/20/2017 (2), 9/25/2017, 9/27/2017, 10/4/2017 (2), 10/11/2017, 10/18/2017, 10/26/2017, 11/1/2017 (2), 12/6/2017, 12/13/2017, 3/29/2018, 8/2/2018, 8/9/2018
Caltrain City/County Staff Coordinating Group	4	6/20/2018, 7/18/2018, 8/15/2018, 9/19/2018
Community Floodplain Administrators	1	2/23/2018
Community Meetings	8	6/6/2016, 6/28/2016, 9/7/2016, 9/27/2016, 10/20/2016, 12/15/2016, 2/2/2017, 2/4/2017
CWGs	23	4/14/2016, 4/18/2016, 8/11/2016, 8/17/2016 (2), 1/23/2017, 1/26/2017, 5/31/2017, 7/12/2017, 8/2/2017, 8/30/2017, 9/27/2017, 10/26/2017, 11/7/2018, 4/24/2018, 4/26/2018, 6/18/2018, 6/19/2018, 5/1/2018, 5/2/2018, 8/16/2018, 8/29/2018, 11/28/2018
Delmas Park Neighborhood Association	1	10/23/2018

Organization/Individual	Number of Meetings Held	Meeting Dates
Diridon Communications Working Group	3	8/31/2016, 7/18/2018, 8/8/2018
Diridon Full Group Working Meeting	1	9/8/2016
Diridon Intermodal Working Group	2	6/1/2017, 7/1/2017
Diridon Parking Task Force Meeting	2	12/8/2016, 6/30/2016
Diridon Partners	1	6/27/2018
Diridon Policy Advisory Board	1	6/17/2016
Diridon SAAG	11	3/21/2018, 4/9/2018, 4/30/2018, 5/23/2018, 6/27/2018, 7/9/2018, 8/13/2018, 8/21/2018, 8/30/2018, 9/17/2018, 10/18/2018
Diridon Station Joint Policy Advisory Board	2	5/18/2018, 12/14/2018
Diridon Station Planning Meeting	1	12/15/2016
Diridon Technical Advisory Group	1	2/3/2017
Diridon/Joint Powers Authority	2	8/5/2016, 10/7/2016
Diridon Working Group	15	7/25/2018, 8/1/2018, 8/15/2018, 10/10/2018, 10/17/2018, 10/24/2018, 10/31/2018, 11/7/2018, 11/14/2018, 11/21/2018, 11/28/2018, 12/5/2018, 12/12/2018, 12/19/2018, 12/26/2018
DISC	13	10/3/2018, 10/10/2018, 10/17/2018, 10/24/2018, 10/31/2018, 11/7/2018, 11/14/2018, 11/21/2018, 11/28/2018, 12/5/2018, 12/12/2018, 12/19/2018, 12/26/2018
Edenvale Great Oaks Plan Implementation Coalition	1	12/7/2016
Edenvale Public Library	1	11/29/2016
FRA	37	1/21/2017, 3/14/2017, 4/25/2017, 5/9/2017, 5/23/2017, 5/24/2017, 6/13/2017, 6/20/2017, 6/27/2017, 6/28/2017, 7/25/2017, 8/8/2017, 8/22/2017, 8/23/2017, 9/12/2017, 9/26/2017, 9/27/2017, 10/10/2017, 10/24/2017, 10/25/2017, 11/7/2017, 12/5/2017, 12/19/2017, 2/28/2018, 3/28/2018, 6/26/2018, 6/27/2018, 7/24/2018, 8/14/2018, 8/28/2018, 9/11/2018, 10/9/2018, 10/23/2018, 11/6/2018, 11/20/2018, 12/4/2018, 12/18/2018
Gardner Flea Market	1	8/20/2016
Gardner Neighborhood Association	3	2/13/2017, 9/18/2017, 7/27/2018
General Services Administration	1	7/18/2016
Geotechnical and Tunneling Advisory Group	1	4/25/2017
Gilroy Chamber of Commerce	3	3/10/2017, 6/8/2018, 6/26/2018
Gilroy City Council	4	9/12/2016, 12/6/2017, 6/8/2018, 9/24/2018

Organization/Individual	Number of Meetings Held	Meeting Dates
Gilroy Community & Neighborhood Revitalization Committee	1	7/19/2017
Gilroy Downtown Business Association	1	9/13/2016
Gilroy Public Library	2	12/19/2016, 4/6/2017
Gilroy Residents and Business Owners	1	11/14/2016
Gilroy Sons in Retirement	1	1/26/2017
Gilroy Station Area Planning Citizens Advisory Committee	2	8/5/2016, 11/9/2016
Gilroy Study Session	1	1/17/2017
Gilroy Unified School District	3	1/20/2017, 6/26/2018, 9/24/2018
Global Climate Action Summit	2	9/12/2018, 9/13/2018
Goodyear-Mastic Neighborhood Association	1	3/8/2017
Grasslands Ecological Area Stakeholders	4	5/18/2018, 5/29/2018, 6/27/2018, 8/15/2018
Grasslands Water District	4	7/13/2016, 8/30/2017, 2/21/2018, 3/23/2018
Henry Miller Reclamation District	2	3/14/2017, 5/31/2017, 8/9/2017
Integral Group	1	9/28/2017
International Right-of-Way Association	1	2/1/2017
International Seminar	1	5/22/2018
International Transportation and Health Conference	1	6/14/2016
Caltrain Local Policy Makers Group	7	2/22/2018, 4/26/2018, 6/28/2018, 8/23/2018, 9/27/2018, 11/29/2018, 7/26/2018
Los Banos Landowners	1	1/24/2018
Los Paseos/Metcalf Neighbors	1	3/29/2017
Los Paseos Neighborhood Association	2	6/14/2018, 10/11/2018
Meet the Primes	1	5/3/2016
Merced County Department of Public Works	1	11/16/2018
Merced County Farm Bureau	1	1/24/2018
Merced County Supervisors	1	7/5/2016
Mineta Transportation Institute	1	8/21/2018
Morgan Hill Chamber of Commerce	2	6/28/2018, 7/20/2018
Morgan Hill City Council	7	6/1/2016, 11/10/2016, 11/16/2016, 5/24/2017, 6/24/2017, 11/15/2017, 4/18/2018
Morgan Hill Day	1	8/14/2008
Morgan Hill Downtown Business Association	1	9/20/2016
Morgan Hill Downtown Visioning Summit	1	6/30/2016

Organization/Individual	Number of Meetings Held	Meeting Dates
Morgan Hill Realtors	1	10/3/2018
Morgan Hill Unified School District	2	7/11/2017, 10/12/2017
MTI National HSR Leadership Summit	1	9/11/2018-9/13/2018
NAHC	1	12/13/2016
NFIP Floodplain Administrators and Managers	1	4/26/2018
NMFS	4	5/2/2017, 6/15/2017, 8/7/2017, 8/29/2017
NOAA	1	6/28/2017
NorCal Legislative Briefing	2	4/13/2016, 3/28/2017
North Willow Glen Neighborhood	1	7/2/2018
Oak Grove Neighborhood Association	1	7/2/2018
Old Quad Residents Association	1	3/14/2017
Pacheco Pass Landowners	1	11/10/2016
Pacific Gas & Electric	1	6/30/2017
Pajaro River Watershed Flood Prevention Authority	1	12/21/2016
Pathways for Wildlife	6	1/10/2018, 2/13/2018, 2/14/2018, 2/28/2018, 3/14/2018, 4/27/2018
Peninsula Open Space Trust	6	1/10/2018, 2/13/2018, 2/14/2018, 2/28/2018, 3/14/2018, 4/27/2018
Peninsula City Mangers	1	7/20/2016
Community Open House Meetings	7	5/16/2016, 5/17/2016, 5/19/2016, 4/18/2017, 4/20/2017, 4/25/2017, 5/1/2017
Rail~volution	2	10/11/2016, 10/12/2016
Resource Agencies (various)	5	10/24/2016, 8/23/2017, 9/27/2017, 10/25/2017, 6/27/2018
Romero Ranch Landowners	4	10/4/17, 12/12/17, 3/15/2018, 4/30/18
San Benito County Water District	1	5/31/2017
San Joaquin Valley Landowners	1	3/14/2017
San Jose City Council	21	2/9/2016, 6/7/2016, 6/10/2016, 9/13/2016, 10/5/2016, 10/27/2016, 12/15/2016, 1/17/2017, 3/18/2017, 3/30/2017, 5/8/2017, 6/30/2017, 5/3/2018, 5/22/2018, 6/4/2018, 6/10/2018, 8/1/2018, 8/8/2018, 8/10/2018, 8/29/2018, 9/7/2018
San Jose Downtown Association	1	3/29/2018
San Jose Joint Policy Advisory Board	1	12/16/2016
San Jose State University, Regional Transportation Planning Class	1	11/16/2016

Organization/Individual	Number of Meetings Held	Meeting Dates
San Jose Walking Tour	1	4/15/2016
San Luis Canal Company	1	1/24/2018
San Martin Neighborhood Alliance	2	7/20/2017, 10/18/2018
Santa Clara County	3	2/9/2017, 4/27/2017, 7/19/2018
Santa Clara County Board of Supervisors	2	11/15/2016, 8/29/2017
Santa Clara County Water District	1	1/4/2018
Santa Clara Joint Planning Advisory Committee Meeting	1	2/9/2017
Santa Clara Valley Habitat Agency	9	1/10/2018, 2/13/2018, 2/14/2018, 2/28/2018, 3/14/2018, 4/27/2018, 5/22/2018, 6/6/2018, 7/10/2018
Santa Clara Valley, Pacheco Pass wildlife agencies and stakeholders	5	12/5/17, 6/13/2018, 7/18/2018, 8/22/2018, 10/10/18
Santa Clara Valley Open Space Authority	6	1/10/2018, 2/13/2018, 2/14/2018, 2/28/2018, 3/14/2018, 4/27/2018
SAP Center	3	1/20/2017, 6/15/2017, 7/18/2018
SCVWD	5	7/15/2016, 4/11/2017, 5/24/2017, 7/18/2018, 8/23/2018
Senter Monterey Neighborhood Association	1	9/11/2017
Seven Trees Neighborhood Association	1	2/1/2017
Silicon Valley Chamber Coalition	1	9/11/2017
Silicon Valley Leadership Group	1	6/10/2016
SLDMWA	2	10/4/2017, 5/31/2017
Small Business Events	3	6/13/2016, 7/23/2016, 8/23/2016, 3/10/2017
Sons in Retirement	2	7/20/2016, 5/11/2017
South Bay Transportation Officials Association	1	6/14/2016
Southern Pacific Retired Executives Club	1	10/5/2016
SPUR	10	4/20/2017, 6/27/2017, 7/28/2017, 8/2/2017, 8/23/2017, 9/28/2017, 4/19/2018, 10/9/2018, 10/11/2018, 10/12/2018
STB	2	5/24/2017, 6/28/2017
Student Groups – UC Berkeley, CSU Fresno, and Fresno City College	1	11/18/2016
SWRCB	1	6/28/2017
TAMC	1	7/28/2016
The Nature Conservancy	6	1/10/2018, 2/13/2018, 2/14/2018, 2/28/2018, 3/14/2018, 4/27/2018
Transbay Joint Powers Authority	1	7/28/2016

Organization/Individual	Number of Meetings Held	Meeting Dates
TransportCA	1	4/28/2017
Tribal Organizations and Contacts	10	3/21/2016, 3/25/2016, 3/29/2016, 5/18/2016, 6/29/2016, 7/7/2016, 9/15/2016, 9/23/2016, 11/4/2016, 10/23/2017
TWGs	11	3/28/2016, 3/29/2016, 8/9/2016, 4/12/2016, 1/23/2017, 1/26/2017, 4/24/2018, 4/26/2018, 5/1/2018, 11/7/2018, 11/28/2018
U.S. Congress	3	6/20/2016, 8/2/2016, 1/23/2017
United Neighborhoods of Santa Clara County	1	9/9/2017
University of California Berkeley	1	5/22/2017
UPRR	1	1/27/2017
USACE	2	5/24/2017, 6/28/2017
USBR	5	8/18/2016, 1/20/2017, 2/17/2017, 4/18/2017, 4/25/2017
USDOT	1	6/20/2017
USEPA	2	5/24/2017, 6/28/2017
USFWS	11	10/13/2016, 10/27/2016, 11/8/2016, 12/8/2016, 1/19/2017-1/20/2017, 2/23/2017, 5/5/2017, 5/24/2017, 6/28/2017, 7/15/2017, 8/16/2017
Viva Calle SJ	1	9/18/2016
VTA	9	6/13/2016, 2/13/2017, 2/23/2017, 5/25/2017, 6/22/2017(2), 9/8/2017, 9/25/2017, 7/24/2018
Walnut Grove Neighborhood Group	1	12/6/2016
Willow Glen Neighborhood Association	2	10/13/2016, 1/11/2018

Source: Compiled by ICF 2018

ACE = Altamont Corridor Express

BART = Bay Area Rapid Transit

BIA = Bureau of Indian Affairs

CalSTA = California State Transportation Agency

Caltrans = California Department of Transportation

CCID = Central California Irrigation District

CDFG = California Department of Fish and Game (to 12/13/2012)

CDFW = California Department of Fish and Wildlife (from 1/1/2013)

CWG = community working group

DWR = California Department of Water Resources

FRA = Federal Railroad Administration

MTC = Metropolitan Transportation Commission

NAAC = Native American Advisory Committee

NAHC = Native American Heritage Commission

NMFS = National Marine Fisheries Service

RWQCB = Regional Water Quality Control Board

SCVWD = Santa Clara Valley Water District

SLDMWA = San Luis and Delta Mendota Water Authority

SPUR = San Francisco Bay Area Planning and Urban Research Association

STB = Surface Transportation Board

SWRCB = State Water Resources Control Board

TAMC = Transportation Agency for Monterey County

TWG = technical working group

UPRR = Union Pacific Railroad

USACE = U.S. Army Corps of Engineers

USBR = U.S. Bureau of Reclamation

USDOT = U.S. Department of Transportation

USEPA = U.S. Environmental Protection Agency

USFWS = U.S. Fish and Wildlife Service

VTA = (Santa Clara) Valley Transportation Authority

APPENDIX B: ALTERNATE SYSTEMS SITES SELECTED FOR THE PRELIMINARY PREFERRED ALTERNATIVE

Stationing	Traction Power Facility	Automatic Train Control site	Communications Radio Tower	Selection Rationale
2874+71			Stand-alone radio tower FJ12 - alternate site 1	Shorter access road
3002+00	Caltrain PCEP TPS-2		Radio tower PCEP TPS - alternate site 2	Co-locates with selected PCEP TPS site
3085+00	Diridon Passenger Station	TCC Room at Diridon Station	Radio tower Diridon Station JM1A - alternate site 2	Avoids relocation of existing tracks
3199+00	Caltrain PCEP PS-7			Existing PCEP PS site
3208+00			Stand-alone radio tower JM1	Direct access to public street. No alternate location
3288+00			Radio tower ATC-E-JM1 - alternate site 1	Direct access to public street. Minimizes ROW acquisition.
403+00		PTC/ATC Type B – alternate site 2		Site closer to Skyway Dr (possible direct access to public street)
428+00			Stand-alone radio tower JM2	Direct access to public street. No alternate location.
512+00	Paralleling Station A1		Radio Tower PS-A1	Uses remainder parcel; only available in constrained ROW
624+00			Stand-alone radio tower JM3 - alternate site 1	Direct access to public street. Minimizes ROW acquisition.
730+00		ATC Type D JM2 - alternate site 1	Radio tower ATC-D-JM2 - alternate site 1	Minimizes environmental impacts to cultural resources.
841+00	Switching Station A - alternate site 2		Radio tower SWS-A - alternate site 2	Minimizes loss of prime agricultural land.
988+50			Stand-alone radio tower JM5 - alternate site 1	Direct access to ATC access roads.
1119+00			Stand-alone radio tower JM6 - alternate site 1	Direct access to public street.
1190+00	Paralleling Station A2 - alternate site 1		Radio tower PS-A2 - alternate site 1	Avoids community park.
1190+50		ATC Type E JM3 - alternate site 1		Co-located with PS A2.
1321+50			Stand-alone radio tower JM7	Direct access to public street.
1449+00		ATC Type D JM4 - alternate site 2	Radio tower ATC-D-JM4 - alternate site 2	Co-locate with at-grade crossing equipment
1523+00	Substation B (HSR) - alternate site 1		Radio tower SS-B - alternate site 1	

Stationing	Traction Power Facility	Automatic Train Control site	Communications Radio Tower	Selection Rationale
1667+00	Downtown Gilroy Station	TCC Room at Pass Station	Radio tower Downtown Gilroy Station	Co-locate with station facility
1678+00		ATC Type A JM 5	Radio tower ATC-A-JM5	Co-locate with ATC site
1777+00		ATC Type A JM 6	Radio tower ATC-A-JM6	Co-locate with ATC site
1858+00	Paralleling Station A3		Radio tower PS-A3	Co-locate with MOWF
1915+50			Stand-alone radio tower JM8	Direct access to ATC access roads. Minimizes loss of prime agricultural land.
1916+00		ATC Type B		No alternate location
2108+89		ATC Type D JM4- alternate site 2	Radio tower ATC-D-JM4 - alternate site 2	Co-locate with ATC site. Minimizes loss of prime agricultural land.
2186+10	Paralleling Station B1 - alternate site 2		Radio tower PS-B1 - alternate site 2	Co-locate with paralleling site. Minimizes loss of prime agricultural land.
2250+00			Radio tower @ Tunnel 1 west portal	Co-locate with portal.
2345+00	Paralleling Station B2 (@Tunnel 1 east portal)		Radio tower @ Tunnel 1 east portal	Co-locate with portal.
3279+00			Stand-alone radio tower JM9	Direct access to TPS Switching Station B access road.
3320+00	Switching Station B (Tunnel 2 west portal) - alternate site 2	ATC Type D JM5 @ T2 W. Portal	Radio tower Tunnel 2 west portal	Co-locate with tunnel portal.
3596+00	Paralleling Station B3			Located in tunnel.
3860+00	Paralleling Station B4			Locate in tunnel.
4038+00			Radio tower @ Tunnel 2 east portal	Co-located with tunnel portal.
4183+36		ATC Type D JM7	Radio tower ATC-D-JM7	Co-locate with ATC site.
4183+83	Substation Station C		Radio tower SS-C	Co-locate with substation.
4290+25			Stand-alone radio tower JM10	Minimizes loss of prime agricultural land.
4398+50	Paralleling Station C1 - alternate site 1		Radio tower PS-C1 - alternate site 1	Minimizes loss of prime agricultural land
4483+86		ATC Type D JM8- alternate site 1	Radio tower ATC-D-JM8 - alternate site 1	Co-locate with ATC site. Minimizes loss of prime agricultural land

Stationing	Traction Power Facility	Automatic Train Control site	Communications Radio Tower	Selection Rationale
4646+50	Paralleling Station C2 - alternate site 2		Radio tower PS-C2 - alternate site 2	Minimizes loss of prime agricultural land.
4771+59			Stand-alone radio tower JM11 - alternate site 1	Minimizes loss of prime agricultural land
4792+29		ATC Type E	Radio tower Interlocking site E	Co-locate with ATC site
4921+63	Switching Station C- alternate site 1		Radio tower SWS-C - alternate site 1	Minimizes loss of prime agricultural land
5051+48			Stand-alone radio tower JM12	Direct access to public road.
5175+75		ATC Type D JM9- alternate site 1	Radio tower ATC-D-JM9 - alternate site 1	Minimizes loss of prime agricultural land
5179+50	Paralleling Station C3 - alternate site 1		Radio tower PS-C3 - alternate site 1	Minimizes loss of prime agricultural land
5336+60			Stand-alone radio tower JM13 - alternate site 2	Minimizes loss of prime agricultural land